NORTHERN CARNARVON BASIN GEOPHYSICAL AND GEOTECHNICAL CAMPAIGN ENVIRONMENT PLAN SUMMARY

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1 INTRODUCTION

Hess Exploration Australia Pty Ltd (Hess) proposes to conduct a geophysical and geotechnical (GPGT) Campaign (hereafter referred to as 'the Activity') within the Northern Carnarvon Basin in Commonwealth waters, Western Australia. The purpose of the GPGT Campaign is to acquire data to inform Hess' future engineering design for the potential development of petroleum resources. The activities for the GPGT Campaign are proposed to commence in January 2016 and continue over a period of up to five (5) years.

The GPGT Campaign Environment Plan (EP) was assessed by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) and accepted on 1 December 2015. This EP Summary has been prepared in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 11(3) and 11(4).

2 LOCATION OF THE ACTIVITY

The proposed GPGT Campaign will be conducted entirely in Commonwealth waters off Western Australia within a defined Operational Area (Figure 2-1). The boundary of the area of interest (hereafter referred to as the 'Operational Area') covers approximately 29,366 m^2 and is located approximately 155 km north of Onslow and 86 km north of Dampier (Table 2-1). There are no islands or emergent land masses within the Operational Area and the nearest land fall is the Montebello Islands approximately 30 km to the south. Hess holds petroleum titles WA-390-P, WA-474-P, WA-518-P and WA-519-P within the Operational Area (Figure 2-1).

Specific locations of GPGT Campaign activities within the Operational Area are not confirmed at this juncture. Hess will notify regulatory authorities and relevant stakeholders in advance of any proposed survey activities in accordance with legislative requirements and as described in the EP.

Table 2-1: Approximate boundary coordinates for the GPGT Campaign Operational Area

Location Point	Decimal Degrees		Degrees minutes seconds	
	Latitude (South)	Longitude (East)	Latitude (South)	Longitude (East)
1	19.3418	113.306	19° 20' 30.4800"	113° 18' 21.6000"
2	19.3333	116.1666	19° 19' 59.8800"	116° 9' 59.7600"
3	20.0833	116.1666	20° 4' 59.8800"	116° 9' 59.7600"
4	20.08292	114.1890	20° 4' 58.5120"	114° 11' 20.4000"
5	20.53963	114.1890	20° 32' 22.6680"	114° 11' 20.4000"
6	20.54299	113.3073	20° 32' 34.7640"	113° 18' 26.2800"

Datum: GDA94

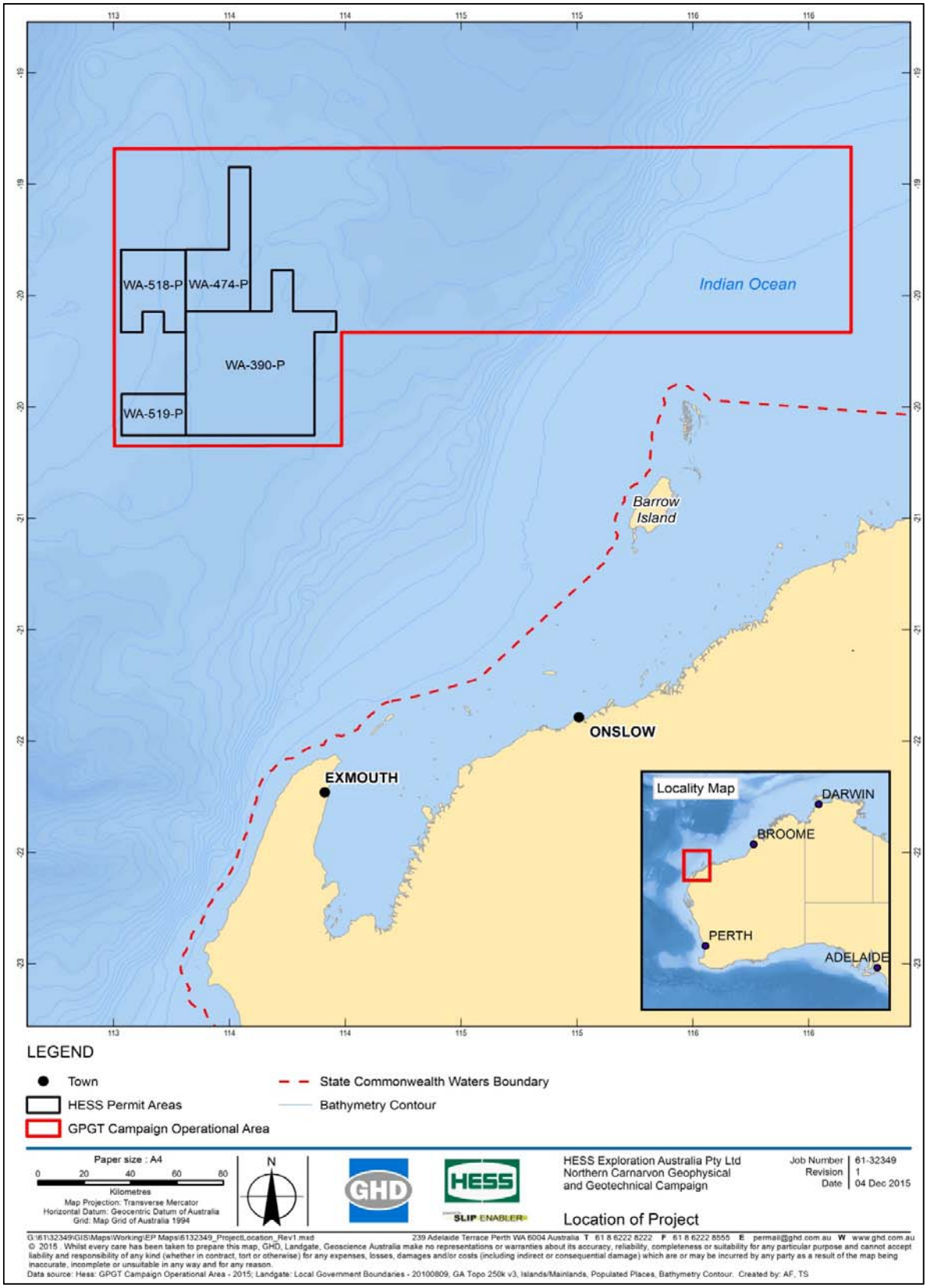

Figure 2-1: Boundary of Hess' GPGT Campaign, including Hess petroleum exploration permits WA-390-P, WA-474-P, WA-518-P and WA-519-P

3 DESCRIPTION OF THE ACTIVITY

3.1 ACTIVITY TIME

The operational activities associated with the GPGT Campaign are proposed to commence from early 2016 and occur only intermittently over a period of up to five (5 years). During this period, there will be down time where no activities are taking place due to operational requirements.

The GPGT Campaign will consist of a small number of short and discrete offshore surveys anticipated to take several weeks complete, dependent on weather conditions and operational requirements. The total spatial 'foot print' of each discrete survey will be a small fraction of the Operational Area presented in Figure 2-1. The vessel-based activities will take place 24 hours per day, 7 days per week. The timing of the offshore surveys will depend on vessel and equipment availability and prevailing weather conditions. The EP has accounted for the Activity occurring in all seasons.

Actual dates of specific surveys are yet to be determined; however Hess anticipates commencing operational activities from early January 2016 starting with at least one geophysical survey, followed by one geotechnical investigation.

3.2 MARINE OPERATIONS

The Activity will comprise two phases:

- Geophysical surveys to acquire geophysical data (refer to Section 3.2.3); and
- Geotechnical investigations to ground truth geophysical data (refer to Section 3.2.4).

3.2.1 Survey Vessels

Due to the clear demarcation between geophysical and geotechnical operations, it is possible that different vessels will be used. General purpose vessels up to 110 m in length will be engaged by Hess for the geophysical surveys, whereas dedicated geotechnical drilling vessels up to 100 m in length will be used for geotechnical investigations. Only one survey vessel will be conducting an activity at any one time.

At this time, the survey vessels have not been contracted. Survey vessels will mobilise to the Operational Area from an Australian port (i.e. Broome, Dampier, Exmouth, Fremantle, or Darwin). The survey vessels will only form part of the Petroleum Activity when they are within the Operational Area. During transit to and from the Operational Area, the vessels will be governed by the relevant marine legislation, outlined within vessel specific Operating Guidelines and the vessel contract approved by Hess prior to mobilisation.

Resupply and opportunistic crew change/transfers, if necessary, will be out of ports proximate to the survey location at the time and will therefore be out of Broome, Dampier or Exmouth. Refuelling will not take place in the Operational Area, with all fuel bunkering planned to occur during port calls in accordance to established guidelines.

Vessels will not anchor in location within the Operational Area because of the water depth (60–1,300 m), instead relying on a dynamic positioning thruster system to remain in position. Through consultation with titleholders and infrastructure owners, Hess will agree to and abide with exclusion zones around third party infrastructure. Through the implementation of 'no anchoring' in the Operational Area and with exclusion zones in place around third party infrastructure, the risk of damage to third party subsea infrastructure during the GPGT Campaign is negated.

3.2.2 Helicopters

Helicopters may be used to transfer personnel to and from the vessels. Personnel transfer will occur during daylight hours where possible, but may occur at night in the event of an operational emergency, medical evacuation or other non-routine circumstances. Helicopters will mobilise from either Exmouth or Karratha.

3.2.3 Geophysical Surveys

The objectives of the geophysical surveys are to accurately measure water depth and seabed topography; and to identify and map the nature and distribution of seabed types in the area, such as seabed or sub-bottom hazards, significant features such as gravity flow deposits, faulting or slumping.

The campaign involves the use of a survey vessel to acquire high resolution bathymetry, side scan sonar, magnetometer data and shallow sub-bottom profile data for pre-development feasibility studies. This will require the acquisition of geophysical data over potential development sites along pre-defined survey transects to determine the suitability of the seabed for locating potential moorings, drill centre manifolds, riser bases, pipeline routes and mobile offshore drilling unit (MODU) moorings.

An autonomous underwater vehicle (AUV) will be equipped with multibeam echo sounder, high resolution side scan sonar, and sub-bottom profiling equipment. An AUV is a self-propelled, small submersible vehicle that tracks pre-programmed coordinates approximately 50 metres above the seabed. An AUV is not tethered to the survey vessel and therefore requires no power umbilical. The AUV will have options to include additional payloads such as synthetic aperture sonar, forward looking sonar, turbidity sensors and digital camera. A survey vessel will use either a hull-mounted and/or a towed-fish based system. Survey vessels will travel at very slow speeds during operational activities, which will typically be less than 5 knots.

A remotely operated vehicle (ROV) may be used to augment this equipment, giving the ability to investigate sonar targets, pipeline crossings, seabed features, wreck sites and other areas of specific interest. ROVs can be fitted with various tools and are fitted with camera systems (still/video), which can be used to capture permanent records of the environment and operations.

3.2.4 Geotechnical Investigations

The objective of the geotechnical investigations is to complement the geophysical surveys and provide data from specific sites of interest as identified in the geophysical surveys or third party datasets. Geotechnical investigations will include the *in situ* testing and/or recovery of actual seabed or sub-seabed samples such as sediment or rock.

Geotechnical site investigations are generally performed from a specialised geotechnical vessel or a vessel of opportunity such as a survey or supply vessel. The vessel is positioned above the testing location and the seabed unit or sampling system is deployed with the aid of an A-frame, a crane, through the ship's moon pool or with a special deployment structure over the side of the vessel. After the seabed unit or sampling device is placed on the seabed, the test is performed and / or sample is collected.

The geotechnical investigations for the GPGT Campaign will employ shallow downhole and seabed techniques.

A downhole system involves drilling a borehole and lowering a tool in a pre-drilled borehole and performing *in situ* testing or sampling from the bottom of the borehole.

A seabed system uses equipment that rests on the seabed and provides the means to carry out tests and recover samples from the underlying sediments. Generally, the seabed equipment is simply lowered over the side of a vessel, and the resting and sampling operations are controlled via an umbilical cable.

3.2.4.1 Geotechnical Drilling Systems

Seafloor Drilling Systems

Seafloor drilling systems provides the ability to drill, to recover soil samples and to perform *in situ* testing. Samples are stored in the dedicated tool racks until the drilling unit is recovered back on deck of the vessel.

The system is landed on seabed with a guidebase and is connected by a control umbilical to provide power and video to allow for real-time high-speed control. Deployment and recovery is achieved with the vessel crane or a dedicated launch and recovery system (LARS).

Vessel Drilling Systems

For vessel drilling systems, geotechnical sampling / testing tools are deployed down the centre of the drill string from the vessel. A derrick and draw works is used to suspend the drill string and raise and lower items between the vessel and the seafloor.

3.2.4.2 Drill Cuttings

Drill cuttings are composed of materials being drilled, ranging from soil / clay particles to small fragments of rock. The drill cuttings will be removed from the borehole by drill fluid and be discharged at the seafloor.

3.2.4.3 Drill Fluids

Drill fluid is used to lubricate the drill bit, to keep the borehole clean and to provide borehole stability during drilling. Geotechnical drilling fluids are primarily made up of seawater with one or more drill fluid additives mixed in, to create appropriate properties for the seabed condition and drilling need. During drilling, the drill fluids are returned to the seafloor.

Typical geotechnical drilling fluid properties are shown in Table 3-1. The drill fluid additives will only be known after the contract is awarded, but the proposed fluid will be assessed by Hess prior to approval for use.

Table 3-1: Typical geotechnical drill fluid additives

Component	Function	Approximate Concentration Range (kg/m^3)	OCNS Rating [1]
Seawater	Base fluid	As required	N/A – sea water
Bentonite	Viscosifier	57	OCNS Group E
Guar gum	Viscosifier	8.57	OCNS Group E
PAC-R	Viscosifier	As required	OCNS Group E
PAC-L	Viscosifier	As required	OCNS Group E
Caustic soda	pH	0.29	OCNS Group E
Soda ash	Calcium controller	0.29	OCNS Group E

3.2.4.4 Penetration Testing

Cone Penetrometer

Cone penetration testing involves pushing a probe into the seabed and continuously recording the cone resistance, sleeve friction and pore water pressure.

The cone penetration test generally uses a piezocone, a cylindrical penetrometer with a 60° conical tip, where a load cell is attached to measure the resistance to penetration. A sleeve is mounted above the tip and a load cell attached to this sleeve to measure the side friction. It also incorporates a pressure transducer that measures the pore water pressure as the cone penetrates. The results can be used to determine the soil types of the various layers intersected. Since data are obtained continuously with depth, it is able to detect fine changes in stratigraphy.

Cone penetrometers are approximately 25–40 mm (diameter) and 500–1500 mm^2 (nominal approximate cross section).

Full Flow (T-bar or Ball) Penetrometer

The cone penetrometer can be replaced with a T-bar or a ball penetrometer, which are full flow penetrometer tests designed to evaluate the shear strength (peak and remoulded) of soft sediments. The test involves pushing a short section of horizontal bar / ball into the sediments and measuring the resistance to penetration. The horizontal bar / ball is attached to a cone penetrometer to measure the resistance to penetration. Cyclic tests are carried out to estimate the remoulded shear strength of the sediments. Deployment is similar to the CPT whereby it is pushed to the required depth below the mudline.

T-bar penetrometers are approximately 40 mm (nominal diameter) and 250 mm (length).

[1] United Kingdom's Offshore Chemical Notification Scheme (OCNS)

Ball penetrometers range from approximately 56.4 mm to 133 mm in diameter.

3.2.4.5 Piston and Push Sampling

Piston and push sampling involves pushing a steel sample tube into the sediment to recover seabed soil samples for geotechnical analysis. Samples may be retained directly in the steel sample tube or in a polyvinyl chloride (PVC) liner recessed inside the sample tube. The leading edge of the sample tube is tapered to minimise sample and seabed disturbance and may include an internal core catcher to improve sample recovery in loose sediments. Piston and push samples are typically in the order of 44-85 mm in diameter and 1-3 m in length.

3.2.4.6 Rotary Core Sampling

Rotary core sampling involves drilling through cemented soils or weak rock with an open-centered drill bit. Sampling can be performed with a dedicated rotary coring drill string or a drop-in core barrel that latches inside the API drill string. Rotary core samples are typically in the order of 44-85 mm in diameter and 1.5-3 m in length.

3.2.4.7 Vibracore Sampling

The vibrating mechanism of a vibracorer, sometimes called the "vibrahead", operates on hydraulic, pneumatic, mechanical or electrical power from an external source. The attached core tube is driven into sediment by the force of gravity, enhanced by vibration energy. When the insertion is completed, the vibracorer is turned off, and the tube is withdrawn with the aid of hoist equipment. Vibracore samples are typically 100 mm in diameter and 4-12 m in length.

3.2.4.8 Box Core Sampling

Very shallow sediments may be recovered by box core samplers. Box dimensions commonly used for offshore geotechnical investigations are approximately 0.5 m x 0.5 m x 0.5 m. The box is mounted on a frame, which is lowered to the seafloor with a self-releasing trigger mechanism that allows the box to penetrate into the seafloor. The penetration is limited by a stopper to a depth of up to 1 m (typically 0.5 m depth). Box core samples can be up to 0.125 m^3.

4 RECEIVING ENVIRONMENT DESCRIPTION

This section provides a summary description of the receiving environment that may potentially be affected by planned and unplanned events relating to the GPGT Campaign. It includes natural, cultural and socio-economic aspects of the environment as well as particular relevant values and sensitivities including matters protected under the EPBC Act.

4.1 REGIONAL GEOGRAPHICAL SETTING

The Operational Area of the proposed GPGT Campaign is located within the Northern Carnarvon Basin in Commonwealth waters, Western Australia. The Operational Area lies within the North-West Marine Region (NWMR) which encompasses Commonwealth waters from the Western Australia/Northern Territory (NT) border in the north to Kalbarri in the south. Management of the NWMR under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is guided by the Marine Bioregional Plan for the NWMR (DEWHA, 2008[2]).

The NWMR comprises eight provincial bioregions. The Operational Area intersects three of these provincial bioregions with the majority of the Operational Area falling within the Northwest Province and lesser proportions falling in the Northwest Shelf Province, and the Northwest Transition. The Northwest Province is composed almost entirely of continental slope environments. Water depths vary from 10 m near the shelf break to more than 5,170 m on the lower slope, although most of the region lies in depths between 1,000 and 3,000 m (Baker *et al*., 2008[3]). The Northwest Shelf Province is located almost entirely on the continental shelf between North West Cape and Cape Bougainville. The continental shelf in this province gradually slopes from the coast to the shelf break and includes numerous seafloor features such as banks/shoals, terraces, and holes/valleys. Water depths reach up to 200 m, however a significant proportion is 50 to 100 m (Baker *et al*., 2008[4]). The Northwest Transition mostly occurs on the continental slope, with approximately 20% on the Abyssal Plain. Water depths in the bioregion range from 10 m near the shelf break to ~5,980 m on the Abyssal Plain.

4.2 PHYSICAL ENVIRONMENT

Australia's North West Shelf (NWS) lies in a tropical arid region with a monsoon climate. The summer season (October-March) has higher air temperatures, humidity and rainfall with periodic tropical cyclones and thunderstorms. During this period prevailing winds are from the west to southwest that are warm and humid. Average wind speeds are <10 knots with peak averages of 15–25 knots and maxima of 30 knots. Winds in winter (May August) are offshore (i.e. northeast to southeast) with dry air (i.e. lower humidity) from the continent's interior. Winter winds typically are lower than in summer with average speeds of 5–6 knots, peak averages of 10–15 knots, and maxima of 20 knots. In proximity to the coast, the land-sea breeze dynamic may dominate, particularly through summer when the temperature differential is greatest. In the Operational Area, sea surface wind is predominantly

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2 Department of Water, Environment, Heritage and the Arts (DEWHA). (2008). North-west Marine Bioregional Plan – Bioregional Profile: A description of the ecosystems, conservation values and uses of the North-west Marine Region. DSEWPaC, Canberra, ACT. Available to download from: http://www.environment.gov.au/resource/north-west-marine-bioregional-plan-bioregional-profile-description-ecosystems-conservation

3 Baker, C., Potter, A., Tran, M. & Heap, A. D. (2008). Sedimentology and geomorphology of the Northwest Marine Region: a spatial analysis. Geoscience Australia Record 2008/07. Geoscience Australia, Canberra. Available to download from: http://www.ga.gov.au/corporate_data/65769/Rec2008_007.pdf

4 Ibid.

westerly to southwesterly during summer (October March), with easterly to south easterly winds during winter (May August) (GHD, 2015[5]).

The Western Australian coastline is also influenced by the Indonesian Throughflow current. This system is a warm, low salinity current which travels predominantly from the northern Pacific Ocean, through the Indonesian Archipelago and into the eastern Indian Ocean (Schott and McCreary, 2001[6]). Along the Western Australian coastline, the Throughflow eventually feeds into the Leeuwin Current, a warm south flowing current which separates the Western Australian coast from the Western Australian Current. The Operational Area lies in an area influenced by the Leeuwin Current.

The wave climate in the region is caused by a combination of sea waves and swells. Sea waves are locally generated by wind particularly during tropical cyclones and thunderstorms and occur predominately from the south-west throughout the year. The largest swells generally occur from June to October. The largest waves (sea waves in combination with swell) occur from June to September, with April and May typically being the calmest months.

Seawater surface temperatures in the North West Shelf are usually thermally stratified (SSE, 1993[7]). Approximate sea surface temperatures from the region range from 23-24°C during August–October and from 30-31°C in February–April. The temperature difference between surface and the bottom is approximately 27°C in the summer and 19°C in the winter. The water temperature below 600 m will remain fairly constant throughout the year at 4-6°C to a depth of 1,200 m.

4.3 ECOLOGICAL ENVIRONMENT

The areal extent of the ecological environment including those environmental values and sensitivities within the area that may be affected [AMBA]) that are described in the EP include those known to occur within the Operational Area and also encompass the greatest areal extent predicted by hydrocarbon spill modelling of a maximum credible marine diesel oil (MDO) spill (100 m^3) resulting from tank rupture from a vessel collision during the Activity.

4.3.1 Habitats

The Operational Area is located in sub-tropical to tropical waters with the dominant flora and fauna throughout this area typically Indo-West Pacific distributed species. The climactic characteristics of

5 GHD Pty Ltd (2015). Northern Carnarvon Basin Geophysical and Geotechnical Campaign Diesel Spill Modelling. Report for Hess Exploration Pty Ltd. August 2015.

6 Schott, F.A., and McCreary, P.J. (2001). The Monsoon Circulation of the Indian Ocean. Progress in Oceanography, 51: 1–123.

7 SSE (1991). Normal and extreme environmental design criteria. Campbell and Sinbad locations, and Varanus Island to Mainland Pipeline. Volume 1. Prepared for Hadson Energy Limited by Steedman Science and Engineering. Report E486. March 1991.

the region is predominantly temperate to tropical, with dominant coastal habitats of coral reefs to macroalgal habitats.

Although targeted benthic assessment in the Operational Area for the proposed GPGT Campaign has not been undertaken, previous surveys (box coring, pre-drilling ROV surveys, sediment grabs, and seismic and sonar surveys) throughout Hess' WA-390-P permit area are available. Given the majority of the Operational Area has a similar depth to permit area WA-390-P, it is assumed to exhibit similar benthic attributes. The Operational Area is therefore likely to be comprised of deep, soft sediments with typical infauna and epifaunal macro-invertebrates of this type of habitat within the North West Province and on a larger scale, the North West Shelf region (Ward and Rainer, 1988[8]). In this region, benthic communities in depths greater than 200 m primarily are comprised of scavengers, detrital feeders and filter feeding organisms (DEWHA, 2007[9]) with percentage cover of epibenthic communities typically less than shallower regions (Fulton *et al*., 2006[10]). As the majority of the Operational Area lies in waters deeper than 1,000 m with a homogenous seafloor, it is unlikely that sensitive benthic habitats will be encountered.

Subtidal/intertidal (e.g. coral, macroalgae, seagrass) and shoreline (e.g. mangroves) habitats occur in the geographic features encompassed by the worst-case diesel spill AMBA, namely the proximal North West Islands (Barrow, Muiron, Montebello, Dampier) and the mainland Ningaloo region. No Critical Habitats or Threatened Ecological Communities, as listed under the EPBC Act, are known to occur within the Operational Area or worst-case diesel spill AMBA.

Barrow Island, the Lowendal Islands and the Montebello Islands are part of a shallow submarine ridge, which extends north from the mainland near Onslow. The ridge contains extensive areas of intertidal and shallow subtidal limestone pavement surrounding the numerous, mostly small islands which are found in the region. The seabed is largely less than 5 m deep and consists of sand veneered limestone pavement with patches of fringing coral reef.

The Montebello Islands are a protected group of islands that support globally unique mangroves. The Montebello's are also important for the migratory pathway of the protected humpback whale, provide foraging area for marine turtles adjacent to important nesting sites, provide foraging area adjacent to important breeding areas for migratory seabirds and provide foraging areas for whale sharks. The green, flatback and hawksbill turtles also nest on this island group.

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8 Ward, T.J. and Rainer, S.F. (1988). Decapod crustaceans of the North West Shelf, a tropical continental shelf of North-Western Australia. Australian Journal of Marine and Freshwater Research, 39: 751-765.

9 Department of Water, Environment, Heritage and the Arts (DEWHA). (2007). A Characterisation of the Marine Environment of the North-west Marine Region. A summary of an expert workshop convened in Perth, Western Australia, 5-6 September 2007. Prepared by the North-west Marine Bioregional Planning Section, Marine and Biodiversity Division. DEWHA, Canberra, ACT.

10 Fulton, E., Hatfield, B., Althaus, F. & Sainsbury, K. (2006). *Benthic habitat dynamics and models on Australia's North West Shelf.* NWSJEMS Technical Report No. 11. June 2006. CSIRO, Hobart, Tasmania.

The coral reefs near the Muiron Islands are noted as being luxuriant and comparable with the best of coastal reef systems in WA, and a number of new fish species have been recorded in the area. The islands and reefs are of high aesthetic value. These islands are also noted to support mangroves, some sandy beaches, macroalgae and seagrass beds in the shallow waters (particularly on the eastern sides). It is also an important nesting and foraging habitat for green turtles, and important foraging and nesting habitat for seabirds. The flatback, hawksbill, loggerhead and leatherback turtles are also known to nest on these islands.

The Ningaloo Coast is a world heritage listed coastal marine environment which stretches from the North West Cape south to Red Bluff, comprising of 200 km of the Ningaloo Barrier Reef. The Ningaloo Coast forms an important constituent of the nature-based tourism industry in the Exmouth region. This region provides key foraging areas for whale sharks, part of the annual migratory pathway for humpback whales, foraging areas for marine turtles adjacent to important nesting sites, and foraging areas adjacent to important breeding areas for migratory seabirds.

The Dampier Archipelago is a system of islands, rocky reefs, coral reefs, shoals, islets, channels, straights and rocky outcrops around Dampier. The region is a hotspot for sponge diversity, is rich in coral species and provides protection of important foraging areas for listed and migratory species, foraging areas adjacent to important breeding areas for migratory seabirds, foraging areas adjacent to important nesting sites for marine turtles and a migratory pathway of the protected humpback whale.

4.4 RELEVANT VALUES AND SENSITIVITIES OF THE ENVIRONMENT

4.4.1 Protected Species

An online search of Matters of National Environmental Significance or other matters protected by the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) was conducted to identify potential environmental receptors within the Operational Area and the wider AMBA. Table 4-1 includes those threatened and migratory species listed under the EPBC Act that occur in the Operational Area and the worst-case MDO spill AMBA.

Table 4-1: Threatened and migratory marine species occurring in the operational area and MDO spill (100 m^3) AMBA

Value / Sensitivity		EPBC Act Status CE = Critically Endangered E = Endangered V = Vulnerable M = Migratory - = Not present	Presence	
Common Name	**Scientific Name**		**Operational Area**	**Worst-case MDO spill AMBA**
Fish and Sharks				
Great white shark	*Carcharodon carcharias*	V, M	✓	✓
Grey nurse shark	*Carcharias taurus*	V	✓	✓
Dwarf sawfish	*Pristas clavata*	V	✓	✓
Whale shark	*Rhincodon typus*	V, M	✓	✓
Shortfin mako	*Isurus oxyrinchus*	M	✓	✓
Longfin mako	*Isurus paucus*	M	✓	✓
Giant manta ray	*Manta birostris*	M	✓	✓
Porbeagle shark	*Lamna nasus*	M	-	✓
Plus other listed species of seashore and pipefish		-	✓	✓
Marine Mammals – Whales, Dolphins and Sirienias				
Blue whale	*Balaenoptera musculus*	E, M	✓	✓
Humpback whale	*Megaptera novaeangliae*	V, M	✓	✓
Southern right whale	*Eubalaena australis*	E, M	-	✓
Bryde's whale	*Balaenoptera edeni*	M	✓	✓
Antarctic minke whale	*Balaenoptera bonaerensis*	M	✓	✓
Sperm whale	*Physeter macrocephalus*	M	✓	✓
Indo-Pacific humpback dolphin	*Sousa chinensis*	M	-	✓
Spotted bottlenose dolphin	*Tursiops adundus*	M	✓	✓
Killer whale	*Orcinus orca*	M	✓	✓
Dugong	*Dugong dugon*	M	-	✓
Plus other listed species of whales and dolphins		-	✓	✓
Marine Reptiles				
Loggerhead turtle	*Caretta caretta*	E, M	✓	✓
Green turtle	*Chelonia mydas*	V, M	✓	✓
Leatherback turtle	*Dermochelys coriacea*	E, M	✓	✓
Flatback turtle	*Natator depressus*	V, M	✓	✓
Hawksbill turtle	*Eretmochelys imbricata*	V, M	✓	✓
Short-nosed seasnake	*Aipysurus apraefrontalis*	CE	-	✓
Other listed species of seasnake		-	✓	✓
Marine Birds				
Curlew sandpiper	*Calidris ferruginea*	CE	-	✓
Southern giant-petrel	*Macronectes giganteus*	E, M	✓	✓
Soft-plumaged petrel	*Pterodroma mollis*	V	-	✓
White-bellied sea-eagle	*Haliaeetus leucogaster*	M	-	✓
Eastern osprey	*Pandion cristatus*	M	✓	
Campbell albatross	*Thalassarche melanophris impavida*	V	-	✓
Fork-tailed swift	*Apus pacificus*	M	-	✓
Flesh-footed shearwater	*Puffinus carneipes*	M	-	✓
Wedge-tailed shearwater	*Puffinus pacificus*	M	-	✓
Bridled tern	*Sterna anaethetus*	M	-	✓
Caspian tern	*Sterna caspia*	M	-	✓
Roseate tern	*Sterna dougallii*	M	-	✓
Plus other listed species of marine birds		-	✓	✓

4.4.2 Marine Flora and Fauna

There are four species of sharks/rays listed as vulnerable and/or migratory identified as potentially occurring within the Operational Area and an additional four species of fish/sharks within the worst-case diesel spill AMBA, which includes the whale shark the largest fish species worldwide. Whale sharks are known to seasonally occur in Western Australia with one of the more well-known aggregation sites located at Ningaloo Reef between March and June.

There are three species of marine mammals listed as endangered or vulnerable and migratory identified as potentially occurring within the Operational Area. Pygmy blue whale and humpback whale individuals could be encountered traversing through the Operational Area as they travel near to the Australian coastline migrating from tropical water breeding grounds in winter to temperate and polar feeding grounds in the summer. An additional seven migratory species may occur within the worst-case diesel spill AMBA.

There are five species of marine turtles listed as endangered or vulnerable and migratory identified as potentially occurring both in the Operational Area and worst-case diesel spill AMBA. Although the Operational Area does not include any important feeding or foraging habitats for marine turtles, the coastal beaches and offshore islands in the region support significant rookeries of marine turtles. The critically endangered seasnake is likely to occur in the worst-case diesel spill AMBA associated with coral reefs and inshore waters.

A large number of seabirds and shorebirds migrate across the region to coastal habitats including offshore islands, sandy beaches, tidal flats and mangroves that support important habitat (feeding, roosting and breeding). In the Operational Area, two species of marine birds (the Southern giant petrel and the Eastern osprey), listed as endangered and migratory or vulnerable, may be encountered, although the Operational Area does not contain critical habitats for any bird species. A further ten marine bird species listed as migratory have been recorded in the worst-case diesel spill AMBA.

4.4.3 Marine Protected Areas

No state marine parks or marine management areas overlap with the Operational Area. The boundary of one marine protected area overlaps with the Operational Area, the Montebello Commonwealth Marine Reserve. Marine protected areas within the worst-case MDO spill AMBA (with distances from the Operational Area) are summarised in Table 4-2.

Table 4-2: Commonwealth marine reserves and State marine parks

Sensitivity	Distance from Operational Area	Values Description
Montebello CMR	0 km (boundary of CMR overlaps with Operational Area)	The reserve abuts the Barrow Island and the Montebello islands WA Marine Parks. The depth range from 15-150 m, the reserve includes a variety of shelf and slope habitats as well as pinnacle and terrace seafloor features, representative of the continent shelf environment. Key sensitivities of the CMR are foraging areas for marine turtles adjacent to important nesting sites; foraging areas adjacent to important breeding areas for migratory seabirds; foraging areas for whale sharks; and migratory pathway of the protected humpback whale.
Gascoyne CMR	17 km	Covering an area of 81,766 km^2, this large CMR lies in waters ranging from 15-5,000 m. The CMR includes areas zoned as Multiple Use, Habitat Protection and Marine National Park. The CMR encompasses some of the most diverse continental slope habitats in Australia and several hundred fish species have been recorded from the area. Key sensitivities relating to the CMR are foraging areas for migratory seabirds, hawksbill and flatback turtles and whale sharks. The CMR contains three key ecological features: Canyons between the Curvier Abyssal Plain and the Cape Range Peninsula; Exmouth Plateau; and the Continental slope Demersal Fish Communities.
Ningaloo CMR	125 km	The Ningaloo CMR, formally known as the Ningaloo Marine Park, covers a total area of 2,326 km^2 and runs parallel to the State-managed Ningaloo Marine Park along the Cape Range peninsula. The CMR covers a depth range of 15-150 m. Key sensitivities are foraging areas for whale sharks; foraging areas adjacent to important breeding areas for migratory seabirds; foraging areas for marine turtles adjacent to important nesting areas; and part of the annual migratory pathway for humpback whales.
Ningaloo Marine Park	127 km	The Ningaloo Marine Park (NMP) was originally declared in 1987 and in June 2011 became part of the World Heritage listed Ningaloo Coast. The NMP is a multiple-use Marine Park that stretches approximately 300 km along the west coast of the Cape Range Peninsula near Exmouth from Bundegi in the north to Red Bluff in the south. The NMP consists of both State and Commonwealth waters, which are declared under Western Australian and Commonwealth legislation. The NMP provides habitat for a diverse range of marine species including corals, reef fish, marine turtles, manta rays, sharks, whale sharks, dugongs, dolphins, and whales. Intertidal systems such as rocky shores, sandy beaches, estuaries, and mangroves are also found within the NMP. The most dominant marine habitat is the Ningaloo Reef comprising areas of hard coral, macroalgae, turfing algae, limestone pavement and sand.
Barrow Island Marine Park, Barrow Island Marine Management Area and Montebello Islands Marine Park Area	72 km, 39 km and 23 km respectively	The Barrow Island Marine Park, the Barrow Island Marine Management Area and the Montebello Island Marine Park lie adjacent to one another and cover areas of approximately 42 km^2, 1,147 km^2, and 583 km^2 respectively. The Marine Parks and Marine Management Area comprise numerous low lying limestone islands, islets and rocky stacks with intertidal and subtidal coral reefs, mangrove macroalgal communities and sheltered lagoons. The island group lies entirely within WA State waters, with the State-Commonwealth boundary extending out to encompass the islands and waters 3 nm west of Barrow Island and north of the Montebello Islands. Specific ecological values include for foraging areas for seabirds, migratory shorebirds, whale sharks; aggregation and nesting sites for marine turtles; feeding grounds for dugongs; mangrove communities (those on the Montebello Islands are considered to be globally unique); migratory pathway of the protected humpback whale; special purpose zones for commercial pearling; and fringing coral reef communities.

4.4.4 Biologically Important Areas

Biologically important area (BIAs) are spatially defined areas where aggregations of species are known to display important behaviour such as breeding, feeding, foraging, resting or migration. These areas are considered to be particularly important for the conservation of protected species.

A review of the North West National Conservation Values Atlas (DotE, 2015[11]) identified four (4) BIAS for EPBC Act listed species that overlap with the Operational Area (Table 4-3). Although cetaceans, marine reptiles and migratory shark species may occur in the Operational Area, it does not contain significant feeding, breeding or resting areas. Therefore any species that do occur will be transient and migrating through the Operational Area on their way to feeding, breeding and/or nesting areas.

Table 4-3: Biologically important areas (BIAs) for protected whales, sharks and marine turtles that overlap with the Operational Area

Species Name	Common Name	Operational Area overlaps with BIAs	BIA	Timing
Fish and Sharks				
Carcharodon carcharias	Whale shark	✓	Foraging area (northward from Ningaloo along 200 m isobath) overlaps with Operational Area.	March-June (peak April)
Carcharias taurus	Grey nurse shark	x	No critical feeding habitat or breeding or aggregation areas in Operational Area	N/A
Carcharodon carcharias	White shark	x	No critical feeding habitat or breeding or aggregation areas in Operational Area	N/A
Cetaceans				
Balaenoptera musculus brevicauda	Pygmy blue whale	✓	Migration corridor traverses the Operational Area. No critical feeding habitat or breeding areas in Operational Area.	Northbound migration: Apr-Aug Southbound migration: Oct-Dec
Megaptera novaeangliae	Humpback whale	✓	Migration corridor intercepts southeast corner of Operational Area No critical feeding habitat or breeding habitat in Operational Area Nearest key resting area: Exmouth Gulf during southern migration	Northbound migration: Jun-Jul (peak). Southbound migration: Aug-Sept
Marine Turtles				
Natator depressus	Flatback	✓	Inter-nesting habitat overlaps Operational Area. No critical feeding/breeding habitat or aggregation areas in Operational Area. Nesting activity in Ningaloo/Exmouth Gulf is low.	N/A
Caretta caretta	Loggerhead	x	No critical feeding/breeding habitat or aggregation areas in Operational Area	Nesting: Nov/March (peak Dec/Jan)
Chelonia mydas	Green	x	No critical feeding/breeding habitat or aggregation areas in Operational Area	Nesting: Nov-March
Dermochelys coriacea	Leatherback	x	No critical feeding/breeding habitat or aggregation areas in Operational Area	No confirmed nesting sites in WA
Eretmochelys imbricata	Hawksbill	x	No critical feeding/breeding habitat or aggregation areas in Operational Area	Nest all year: peak Oct-Jan.

[11] Department of the Environment. (2015). Commonwealth of Australia. National Conservation Values Atlas. http://www.environment.gov.au/webgis-framework/apps/ncva/ncva.jsf

4.4.5 Key Ecological Features

Key ecological features (KEFs) are areas within the Commonwealth marine environment that are considered to be of regional importance for biodiversity or ecosystem function and integrity. KEFs identified as occurring in the Operational Area and the worst-case MDO spill AMBA during a search of the EPBC Act protected matters database are described in Table 4-4. Those KEFs that lie within the worst-case MDO spill AMBA, but which are not predicted to be contacted by hydrocarbons above the selected thresholds for any of the four simulated diesel phases (i.e. surface oil, total hydrocarbons[12], dissolved hydrocarbons, oil ashore) are shaded blue.

Table 4-4: Summary of Key Ecological Features

Key Ecological Feature	Presence / Absence		Values Description
	Operational Area	MDO Spill (100 m^3) AMBA	
Exmouth Plateau	✓	✓	The Exmouth Plateau is a regionally and nationally unique deep-sea plateau in tropical waters. The plateau is a large topographic obstacle that may modify the flow of deep waters, generating internal tides and may contribute to upwellings of nutrients thus servicing an important ecological role.
Ancient coastline at 125 m depth contour	✓	✓	Parts of the ancient coastline, particularly where it exists as a rocky escarpment, are thought to provide biologically important habitats in areas otherwise dominated by soft sediments. The topographic complexity of these escarpments may also facilitate vertical mixing of the water column, providing relatively nutrient-rich local environments.
Canyons on the slope between the Cuvier Abyssal Plain and the Cape Range Peninsula	X	✓	The canyons are a unique seafloor feature with ecological properties of regional significance. Within the canyons, the soft bottom habitats are likely to support important assemblages of epibenthic species and the upwelling zones at the canyon heads are sites of species aggregation. The canyons are thought to significantly contribute to the biodiversity of Ningaloo Reef. Aggregations of whale sharks, manta rays, fish and seabirds are known to occur in the area.
Commonwealth waters surrounding Ningaloo Reef	X	✓	Ningaloo reef is the only extensive coral reef in the world that fringes the west coast of a continent and the waters support enhanced biological productivity due to the upwelling associated with canyons and interactions with currents. Aggregations of whale sharks, manta rays, humpback whales, fish and seabirds are known to occur in the area.
Continental slope demersal fish communities	✓	✓	The diversity of demersal fish assemblages on the continental slope in the Timor Province, the Northwest Transition and the Northwest Province is high compared to elsewhere along the continental slope.
Glomar Shoals	X	✓	The Glomar Shoals are a unique seafloor feature of highly fractured molluscan debris, coralline rubble and coarse carbonate sand that occurs approximately 3,040 km offshore of Dampier in Commonwealth waters, between depths of 26-70 m. The localised increased biological productivity is thought to attract commercially important fish.

[12] Total hydrocarbons refer to entrained (droplet) and dissolved hydrocarbons in the water column.

4.4.6 World Heritage Property

The worst-case MDO spill AMBA includes the western shoreline of the Ningaloo Coast World Heritage property. No World Heritage Areas are located within the Operational Area.

4.4.7 National Heritage Properties

Two national heritage properties are listed within the worst-case MDO spill AMBA including the Ningaloo Coast, and the Dampier Archipelago (including Burrup Peninsula). No national heritage properties are located within the Operational Area.

4.4.8 Ramsar Wetlands

There are no Ramsar wetlands occurring within the Operational Area or within the worst-case MDO spill AMBA.

4.5 SOCIO-ECONOMIC ENVIRONMENT

4.5.1 Tourism

Tourism activities have not been identified to occur within the Operational Area. There are a number of sources of marine-based tourism within the worst-case MDO spill AMBA. Aquatic recreational activities such as boating, diving and fishing occur near the coast and islands off the Ningaloo, Pilbara and Kimberley coasts. Nature-based tourism, primarily Ningaloo Reef and Cape Range National Park, is popular in the North West coastal region, with seasonal attractions including humpback whale watching, whale shark encounters and tours of turtle hatchings. Fishing charters off of the Montebello Islands are also popular.

4.5.2 Fisheries

The Commonwealth and State managed fisheries that occur within or in close proximity to the Operational Area include:

- Commonwealth managed fisheries: Skipjack Tuna Fisheries, Southern Bluefin Tuna Fishery, Western Deepwater Trawl Fishery, Western Tuna and Billfish Fishery, and North West Slope Trawl Fishery; and
- State managed fisheries (Northwest Shelf Province, North Coast Bioregion and Gascoyne Coast Bioregion): Mackerel Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Onslow Prawn Limited Entry Fishery, Pearl Oyster Managed Fishery; Marine Aquarium Fish Managed Fishery; Pilbara Trawl, Trap and Line Fisheries, Beche-de-Mer Fishery, Pilbara Developing Crab Fishery, and the Specimen Shell Managed Fishery.

4.5.3 Commercial Shipping

Three recognised shipping fairways traverse the Operational Area. Commercial shipping fairways are established by the Australian Maritime Safety Authority (AMSA) and any alerts to changes or hazards within these fairways are managed by 'Notice to Mariners'.

4.5.4 Defence

The Operational Area overlaps with the Learmonth military restricted airspace area. Consultation with the Department of Defence has identified that part of the Operational Area is underneath Restricted Airspaces R862 and R853, and Hess will be required to notify the Department no less than 14 days prior, of any planned aviation (i.e. helicopter) activities.

4.5.5 Oil and Gas Industry

The Operational Area supports a large petroleum industry with exploration and production drilling/ infrastructure common throughout the area. Geophysical and geotechnical survey activities on the NWS are common. Such activities by other Operators are likely to overlap the Operational Area and occur intermittently over the Activity timeframe for the GPGT Campaign (over a period of up to five years).

4.6 CULTURAL HERITAGE

A search of the Australian Heritage Database (AHD) was undertaken for the Operational Area in order to identify any heritage values that could potentially be impacted by the Activity. The AHD contains listings from the following:

- World heritage list: lists internationally significant World Heritage locations listed under the Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention);
- Commonwealth Heritage List: contains natural, indigenous and historic heritage places within the Commonwealth area; these places are protected under the EPBC Act; and
- National Heritage List: contains natural, historic and indigenous places that are of outstanding national heritage value to the Australian nation; these places are protected under the EPBC Act.

There are no heritage locations within the Operational Area. Heritage listings within the worst-case MDO spill AMBA are provided in Section 4.4.6 and 4.4.7.

4.6.1 Australian National Shipwreck Database

The Australian National Shipwrecks Database was launched in December 2009 and includes all known shipwrecks in Australian waters. A search of the shipwreck database identified 41 shipwrecks,

within or close proximity to, the worst-case MDO spill AMBA protected under the *Historic Shipwrecks Act 1976*.

4.6.2 Indigenous Heritage

A search of the Department of Aboriginal Affairs (DAA) Aboriginal Heritage Inquiry System did not identify any heritage sites within the Operational Area.

There are numerous Aboriginal registered sites of cultural significance within the coastal areas of the wider AMBA for a worst-case MDO spill (protected under the *WA Aboriginal Heritage Act 1972*). These sites are primarily concentrated on the foreshore and hinterland on the North West Cape, Dampier Archipelago and the Montebello Islands and include sites of Aboriginal value such as caves, rock shelters, grinding patches, engravings, paintings, shell middens, artefacts/scatter, skeletal material and burial and ceremonial sites. The Ningaloo Reef and adjacent shoreline have a long history of occupancy by Aboriginal communities, as does the Dampier Archipelago (including Burrup Peninsula).

5 ENVIRONMENTAL IMPACTS AND RISKS

5.1 RISK ASSESSMENT AND MANAGEMENT FRAMEWORK

The Hess Corporation Operating Committee (OPCOM) (Houston) has an established strategy to manage Environment, Health, Safety and Social Responsibility (EHS&SR) risks. The Hess EHS&SR Management System framework provides a risk-based methodology to manage EHS&SR through their global operations and activities. This involves:

- Identification of EHS&SR hazards and aspects (both business and operational);
- Assessment and ranking risks associated with operations and activities;
- Selection, implementation and maintenance of a structured system of controls; and
- Monitoring the effectiveness of the process and identifying areas for improvement.

Hess assesses the impact of planned (i.e. routine) events and risk of unplanned (i.e. accidents/incidents) events associated with their petroleum activities through a similar process.

5.2 ENVIRONMENTAL RISK ASSESSMENT APPROACH

An environmental risk assessment (ENVID) was undertaken for all the planned and unplanned events covered within the EP using Hess' Corporate Risk Matrix (EP-EHS-STD-01008) with methodologies that are consistent with the approach outlined in the following standards:

- Australian Standard/New Zealand Standard (AS/NZS) ISO 31000:2009 Risk Management – Principles and Guidelines; and

- AS/NZS Handbook 203:2012 Environmental Risk Management – Principles and Process.

5.2.1 Unplanned Events

The main components of the risk assessment methodology include:

- Identify the activities and the event associated with them that could cause a potential impact to the values (attributes) at risk within and adjacent to the Operational Area.
- Determine the likelihood of the events with standard control measures. Where practicable, quantification of the magnitude of the stressor, the concentration of the contaminant and/or level of disturbance was made. Further, timing, duration and other factors affecting the impact and risk were considered.
- The environmental risk rating of an unplanned event was determined from the combination of the likelihood and the expected severity (i.e. consequence). Risks were rated with the Hess EHS&SR Qualitative Risk Matrix.

The likelihood of an event's occurrence is assessed 'with' standard industry controls in place. Review of the standard industry control measures for each of the risks and proposing additional control measures is then considered, as required. Additionally, control measures to mitigate the impacts of these unplanned events are also risk assessed (e.g. spill response activities) and are included if it reduces the risk to As Low As Reasonably Practicable (ALARP) and to ensure the risk is acceptable to Hess.

5.2.2 Planned Events

The impact assessment methodology for planned events is as for unplanned events, except environmental impacts are assessed solely on the severity (i.e. consequence) that has corresponding Hess acceptability criteria and response guidance.

5.3 IMPACT AND RISK ASSESSMENT

The ENVID assessment identified seven (7) **planned** events representing sources of environmental impact. All planned events were determined to have a severity rating of 'slight' as per the established Hess severity criteria, with the exception of underwater noise emissions, which was separated into noise generated from the operation of the vessels and noise generated from actual survey activities, with the latter evaluated to have a severity rating as 'Minor'. The ENVID assessment identified five (5) **unplanned** events representing sources of environmental risk with the risk ratings determined to be 'low'. Table 5-1 provides a summary of all the **planned** event impacts and Table 5-2 of all **unplanned** event risks identified and controls-mitigation measures to be applied in which to manage them. For

each of the **planned** and **unplanned** events the potential impacts and risks, respectively, arising have been reduced to ALARP and to an acceptable level.

5.3.1 Determination of ALARP

Control measures were identified for each hazard/risk with the aim of eliminating the hazard, or minimising the risk to as low as reasonably practicable (ALARP). The hierarchy of controls for environmental hazards typically includes:

- Eliminate – Remove the risk; eliminate the hazard.
- Substitute – Replace risk with a less hazardous one.
- Engineering – Introduction of engineering controls to prevent the source of risk.
- Administrative – Implementation of procedures, competency and training to minimise the risk.
- Protective – Introduce protective measures and equipment.

For an activity to be considered ALARP, no other practicable control measures could reasonably be implemented to reduce the environmental impacts and risks of the Activity without grossly disproportionate 'costs'. Such 'costs' can be health risks, safety risks, alternative environmental impacts/risks, financial cost and/or schedule related costs. The 'costs' can also be associated with the technical feasibility, reliability and operability of an activity or a control measure.

5.3.2 Acceptability Determination

Impacts and risks are considered acceptable once all reasonably practicable alternatives and additional control measures have been applied to reduce the potential consequence and likelihood to ALARP.

In the GPGT Campaign EP, the environmental impacts and risks associated with the Activity and emergency response procedures were determined to be acceptable if:

- For planned (routine) events, the residual environmental severity (i.e. consequence) is considered 'Minor Effect' or 'Slight Effect', and has been demonstrated ALARP; or
- For unplanned (i.e. accident/incident) events, the residual environmental risk is considered 'Medium' (tolerable) or 'Low' (acceptable), and has been demonstrated ALARP; and
- The Activity (and associated potential risk and impacts) to the environment is consistent with relevant legislation, industry standards and guidelines, offshore practice or benchmarking, and Hess corporate policies, standards and procedures.

Table 5-1: Summary of impact assessment of planned events with control measures that will be applied

Source of Risk (Hazard)	Potential Environmental Impact/Risk (Consequences)	Controls – Mitigation Measures	Impact Assessment Severity Rating
Physical Presence	Interference/displacement of shipping, fishing and/or other third party vessels from the physical presence (timing and location) of the survey vessels.	Navigation, bridge and communication equipment compliant with appropriate marine navigation and vessel safety requirements under the International Convention of the Safety of Life at Sea (SOLAS) 1974 and *Navigation Act 2012* (or equivalent). When towing equipment, vessel displays appropriate display aids to indicate vessel is towing. Navigational aids (AIS). Bridge-watch (visual and radar watches) on vessels to be maintained 24-hours per day. Crew undertaking vessel bridge-watch qualified in accordance with International Convention STCW95; AMSA Marine Order – Part 3: Seagoing Qualifications or certified training equivalent. Notification of locations, duration, etc. of each survey phase to AMSA Rescue Coordination Centre (RCC) and to the Australian Hydrographic Service (AHS). Stakeholders potentially affected by the Activity will be consulted/ advised of relevant activities associated with the GPGT Campaign.	Slight
Seabed Disturbance	Disturbance of seabed habitats or displacement of benthic fauna from the collection of seabed samples during geotechnical survey activities.	Contractor equipment deployment and recovery procedures reviewed and approved by Hess prior to their use. Deployment of submersible equipment to be carried out only under suitable weather/ sea state conditions, as determined by the Vessel Master. Encounters with marine archaeological resources/wrecks are recorded and reported. Survey vessels will not anchor in the Operational Area under normal operating conditions unless required in an emergency situation.	Slight
Noise Emissions from Survey Activities	Generation of underwater noise generated from the operation of vessels causing interference with marina fauna/mammals resulting in behavioural changes or physical injury.	Implementation of EPBC Regulations 2000 – Part 8 Division 8.1. Vessels will not knowingly travel greater than 6 knots within 300 m of a cetacean or whale shark (Caution Zone) and minimise noise. Vessels will not knowingly approach closer than 100 m of a cetacean or whale shark known to be in the area, or 50 m of a dolphin (with the exception of bow riding). If the cetacean/ whale shark shows signs of being disturbed, the vessel will immediate withdraw from the Caution Zone at a constant speed of less than 6 knots. Vessels must move at a constant slow speed and with minimal noise away from a cetacean or whale shark that is approaching so that the vessel remains at least 300 m from the cetacean or whale shark. Environmental awareness induction provided to support vessel crew prior to activities to advise marine fauna interaction requirements.	Slight

Source of Risk (Hazard)	Potential Environmental Impact/Risk (Consequences)	Controls – Mitigation Measures	Impact Assessment Severity Rating
		Sightings of cetaceans, whale sharks and turtles to be recorded and reported.	
	Generation of underwater noise from survey activities (inc. multi-beam echo sounder; sub-bottom profiling; sidescan sonar and drilling/grab/coring) causing interference with marine fauna/mammals resulting in behavioural changes or physical injury.	Environmental awareness induction provided to support vessel crew prior to activities to advise marine fauna interaction requirements. During Geophysical Survey Activities, implementation of requirements of 2008 EPBC Act Policy Statement 2.1 – *Interaction between offshore seismic exploration and whales* (DEWHA, 2008) adapted to noise source technique (i.e. non-seismic array) and to include whale sharks as follows: • Precaution zones will be implemented (Observation Zone (3+ km); Low Power Zone (1 km); Shut-down Zone (500 m)). • Pre-start visual observation of precaution zones (at least 30 minutes before soft-start procedures). • Geophysical survey activities will not commence if whales/whale sharks are sighted within the Low Power or Shut-down Zone. • Geophysical activities will be shut down if whale/ whale shark enters Shut-down Zone; • Relevant crew members are briefed on EPBC Act Policy Statement 2.1 requirements. • Trained Marine Mammal Observer (MMO) onboard vessels undertaking visual observation for marine mammals throughout the geophysical survey activities. • Implementation of pre-start, soft-start, start-up, operations and stop work procedures. • Implementation of night-time and low visibility procedures. Sightings of cetaceans, whale sharks and turtles during geophysical survey operations to be recorded and reported.	Minor
Atmospheric Emissions	Localised reduction in air quality from generation of greenhouse gases from vessel machinery and engines, generators and mobile/fixed plant and equipment.	Vessel Master or delegate ensures emission producing equipment including engines maintained based on a Preventative Maintenance System. Vessels will use marine-grade diesel (sulphur content of less than 3.5%) as the primary fuel source. Vessels will hold a current International Air Pollution Prevention (IAPP) Certificate. Equipment containing ozone-depleting substances (ODS) shall be maintained and, in the case of a support vessel having rechargeable systems containing ODS, an ODS Record Book shall be maintained onboard. No discharge of ODS. No waste incineration will occur onboard the vessels.	Slight
Fluids and Cuttings Discharges	Smothering of benthic habitats and fauna by deposition of cuttings on the seafloor. Localised decrease in water quality from increase in turbidity from	Only water-based muds (WBM) are used (i.e. no synthetic-based muds). Prior to the Activity, a Drilling Fluids Program will be developed to achieve the required drill fluid properties for successful drilling/coring. Where Offshore Chemical Notification Scheme (OCNS) rating of D or E or a CHARM rating of	Slight

Source of Risk (Hazard)	Potential Environmental Impact/Risk (Consequences)	Controls – Mitigation Measures	Impact Assessment Severity Rating
	discharge of fluids and cuttings.	Silver or Gold rated chemicals are used that are intended to be released to the marine environment, no further control required. If non-rated chemicals, or chemicals not D/E rated through OCNS or Gold/Silver rated through CHARM, are used that are intended to be released to the marine environment, chemical selection procedures outlined in Hess Chemical Risk Assessment Procedure will be followed.	
Routine Liquid Waste Discharges	Localised and temporary change in water quality potentially impacting on marine fauna and flora in the immediate vicinity resulting from minor increase in water temperature, increase in nutrients, increase in salinity and toxicity effects.	Vessels to have a valid International Sewage Prevention Pollution (ISPP) Certificate. The sewage treatment plant onboard is maintained based on a Planned Maintenance System. Vessels to have a valid current International Oil Pollution Prevention (IOPP) certificate. Where Offshore Chemical Notification Scheme (OCNS) rating of D or E or a CHARM rating of Silver or Gold rated chemicals are used that are to be released to the marine environment, no further control required. If non-rated chemicals, or chemical not D/E rated through OCNS or Gold/Silver rated through CHARM, are required that are intended to be released to the marine environment, chemical selection procedures outlined in Hess Chemical Risk Assessment Procedure will be followed. No discharge of untreated sewage within 12 nmi of the territorial baseline. No discharge of treated sewage within 3 nmi of the territorial baseline. No discharge of sewage to cause discoloration or visible solids. Putrescible and other food waste discharged only when >12 nmi from the territorial baseline and if ground or comminuted to <25 mm. Liquid from drains is only discharged if the oil in water content does not exceed 15 ppm. Liquids with oil in water content exceeding 15 ppm must be contained and disposed of at a licensed onshore reception facility or to a carrier licensed to receive waste.	Slight
Solid Waste Discharge	Generation of hazardous and non-hazardous waste materials. Potential contamination of marine environment with localised effects.	Waste containers provided for waste containment are clearly marked and suitably covered. All solid waste contained onboard and tracked, logged and sent to shore for recycling or disposal at a government approved waste disposal site. Any loss or discharge to sea of hazardous waste materials is reported to the AMSA Rescue Coordination Centre (RCC). Implementation of Hess Australia Waste Management Plan for the management of waste generation, storage, transport and disposal. The Contractor's Waste Management plan is bridged with the Hess Waste Management Plan. Inventory of waste type, source and quantities will be maintained. Site inductions conducted include Hess waste management requirements.	Slight

Table 5-2: Summary of risk assessment of unplanned events with control measures that will be applied

Source of Risk (Hazard)	Potential Environmental Impact/Risk (Consequences)	Controls – Mitigation Measures	Risk Assessment				
			Severity	Inherent Likelihood	Inherent Risk	Residual Likelihood	Residual Risk
Diesel Spill from Fuel Tank Rupture	Reduction in water quality and toxic effects on marine fauna (pelagic fish, cetaceans, marine mammals and marine reptiles) and flora (phytoplankton).	Navigation, bridge and communication equipment will be compliant with appropriate marine navigation and vessel safety requirements. Automatic Identification System (AIS). Crew undertaking vessel bridge-watch will be qualified in accordance with International Convention of STCW95, AMSA Marine Order – Part 3: Seagoing Qualifications or certified training equivalent. Bridge-watch on all vessels to be maintained 24-hours per day. Notification of location, duration of activities, etc. to AMSA RCC and to the Australian Hydrographic Service (AHS). Relevant stakeholders consulted/advised of GPGT Campaign prior to commencement of the activities. In line with MARPOL Annex 1, all vessels involved with the GPGT Campaign of over 400 gross tonnage will have a current Shipboard Oil Pollution Emergency Plan (SOPEP) in place. Oil spill response executed in accordance with vessels' SOPEP. Hess WA-474-P Exploration Drilling OPEP. No refuelling at sea during the Activity.	Severe	Rare	Low	Rare	Low
Environmentally Hazardous Chemical and Refined Oil Spills	Localised reduction in water quality and localised toxic effects on marine fauna (pelagic fish, cetaceans, marine mammals and marine reptiles) and flora (phytoplankton).	All machinery space oily water exceeding 15 ppm must be contained and disposed of at a licensed onshore reception facility or transferred to a carrier licensed to receive waste. Liquids from drains may only be discharged if the oil-in-water content does not exceed 15 ppm after treatment in a MARPOL-compliant oily water filter system. Vessels will have a current International Oil Pollution Prevention (IOPP) certificate for oily water filter system. Fuels, oils and hazardous chemicals must be stored with secondary	Minor	Unlikely	Low	Unlikely	Low

Source of Risk (Hazard)	Potential Environmental Impact/Risk (Consequences)	Controls – Mitigation Measures	Risk Assessment				
			Severity	Inherent Likelihood	Inherent Risk	Residual Likelihood	Residual Risk
		containment. Critical hoses outside bunded areas are identified and regularly inspected/maintained/replaced as part of the Preventative Maintenance System. Continuous bunding or drip trays used around machinery or equipment with the potential to leak chemicals/fuel. Scupper plugs or equivalent deck drainage control measures available where hazardous chemicals and hydrocarbons are stored and frequently handled. Vessels will have current MARPOL-compliant Shipboard Oil Pollution Emergency Plan (SOPEP) and Shipboard Marine Pollution Emergency Plan (SMPEP – for noxious liquid) – the latter may be combined with a SOPEP. All shipboard hazardous liquid, chemical and hydrocarbons spills will be managed in accordance with the SOPEP/SMPEP. Any loss or discharge to sea of harmful materials to be reported to the AMSA Rescue Coordination Centre (RCC). Spill clean-up equipment is located where hazardous chemicals and hydrocarbons are frequently handled. Hazardous waste materials are contained onboard for onshore disposal at a licensed reception facility or transferred to a carrier licensed to receive waste. Where Offshore Chemical Notification Scheme (OCNS) rating of D or E or a CHARM rating of Silver or Gold rated chemicals are used, no further control required. If other non-rated chemicals, or chemicals not D/E rated through OCNS or Gold/Silver rated through CHARMS, are required, chemical selection procedures as described in Hess Chemical Risk Assessment Procedure will be followed.					
Interference with Marine Fauna	Potential injury or fatality of marine fauna (cetaceans, whale sharks, turtles) due	Compliance with EPBC Regulations 2000 - Part 8 Division 8.1 Interacting with cetaceans.	Minor	Unlikely	Low	Unlikely	Low

Source of Risk (Hazard)	Potential Environmental Impact/Risk (Consequences)	Controls – Mitigation Measures	Risk Assessment				
			Severity	Inherent Likelihood	Inherent Risk	Residual Likelihood	Residual Risk
	to vessel strike from vessel movements in the Operational Area.	A bridge watchkeeper will keep lookout out for cetaceans, whale sharks and turtles during vessel movements in the Operational Area. If sighted near the path of the vessel, the vessel shall gradually divert to avoid it, or slow down to idling speed, if safe and within the vessel's capability. Environmental awareness briefing provided to marine crew that includes marine fauna interaction requirements. Sightings of cetaceans, whale sharks and turtles will be recorded and reported.					
Dropped Objects	Disturbance to seabed habitat in footprint of dropped object.	All lifts to be completed in accordance with the Contractor procedures. All lifting equipment will be certified, is regularly inspected/ maintained and will be used by crew trained in task required. Records of any equipment lost overboard completed. Recovery of dropped objects where practicable to do so.	Slight	Possible	Low	Possible	Low
Introduction of Invasive Marine Species	Changes in ecosystem function and ecological diversity resulting from competition and/or over-predation of native flora and fauna due to translocation of invasive marine species.	Vessel anti-fouling systems are maintained in compliance with the International Convention on the Control of Harmful Anti-Fouling Systems on Ships. Vessels have AQIS clearance to be in Australian waters. Vessels sourced from International or interstate will complete a biofouling Vessel Risk Assessment Score Sheet (VRASS), before mobilisation to Operational Area. Where vessels are sourced from 'high-risk' areas, vessel Contractors to provide evidence of IMS inspections and cleaning (if needed). Ballast water exchange to occur in accordance with the Australian Ballast Water Management Requirements. Suspected or confirmed presence of any marine pest or disease will be reported to FishWatch within 24 hours.	Severe	Unlikely	Medium	Rare	Low

6 OIL POLLUTION EMERGENCY PLAN SUMMARY

Hess has prepared the Northern Carnarvon Basin Geophysical and Geotechnical Campaign Oil Pollution Emergency Plan (OPEP) to be compliant with the *OPGGS (Environment) Regulations*. The OPEP provides immediate actions required to commence a response in the event of a hydrocarbon spill during the GPGT Campaign and has been developed as a formal means of establishing the processes and procedures to ensure that Hess maintains a constant vigilance and readiness to prevent and, where required, respond to and effectively manage hydrocarbon spill incidents that may occur during the Activity.

The survey vessels will have Shipboard Oil Pollution Emergency Plans (SOPEPs) in accordance with the requirement of MARPOL Annex I that outline responsibility, specify procedures and identify resources available in the event of a small hydrocarbon or chemical spills (Tier 1 spill) which are either contained on the vessel or which can be dealt with from/by the vessel. In the event of a major spill, Hess will notify AMSA (administrator of the National Plan) who will assume the role of Control Agency, with support provided by Hess as requested. Initial actions will be undertaken by the survey vessel and Hess, with subsequent actions under direction from AMSA.

6.1 SELECTION OF RESPONSE STRATEGY OPTIONS

Preliminary net environmental benefit analysis (NEBA) of potential response strategies as to their applicability to credible worst-case spill scenarios that could occur during the GPGT Campaign was carried out by accounting for several criteria including their benefit(s), associated environmental impacts and risks, and the operational and functional constraints. If applicable, the response option was assessed to evaluate appropriateness as a primary (to be used as soon as possible) or secondary (only applied as needed and when practical) response. Further, the ALARP principle has been applied across a range of control measures of the selected spill response strategies for this Activity on the basis of the preliminary NEBA to develop an appropriate response strategy.

In the event of a hydrocarbon spill, operational NEBAs will be regularly undertaken to evaluate spill response options that have a net environmental benefit. Hence, in the event of an incident the combination of spill response options and their implementation characteristics will evolve over time as conditions change on the basis of operational NEBAs.

6.2 PRIMARY RESPONSE STRATEGIES

The following primary response strategies will be applied in the event of a hydrocarbon spill:

- ***Source Control***:
    - **Vessel Control** is the primary response strategy for responding to a vessel-based spill to prevent further release of diesel to the marine environment including spill response

in accordance with the vessel Shipboard Oil Pollution Emergency Plan (SOPEP) (e.g. measures such as closing valves, isolating pipework, temporary sealing of holes, use of onsite spill response equipment [e.g. small booms, absorbent pads, absorbent litter, recovery containers, cleaning agents], and transfer of hydrocarbons between tanks on the vessel or between vessels).

- ***Monitoring and Evaluation (Operational Monitoring)*** through a range of methods as needed (e.g. oil spill trajectory modelling, vessel and aerial surveillance, satellite tracking buoys, satellite imagery) will be conducted for all spills to identify emerging risks to sensitive receptors, to inform response planning and to assess the effectiveness of response actions during a spill event.
- ***Oiled Wildlife Response*** through:
    - The collection and rehabilitation of oiled marine fauna and return to a suitable habitat.
    - Reduce impacts to marine fauna through pre-emptive response such as hazing, pre-emptive capture and onshore exclusion barriers.
- ***Scientific Monitoring*** through a range of studies (e.g. water and sediments, subtidal habitats, mangroves, fish tissue, marine megafauna and avifauna) to determine the extent, severity and persistence of environmental impacts and subsequent recovery from a hydrocarbon spill event.

6.3 SECONDARY RESPONSE STRATEGIES

The following secondary response strategies may be applied in the event of a hydrocarbon spill event:

- ***Mechanical Dispersion*** via vessel propellers may enhance dispersion and break-up of surface hydrocarbon to facilitate natural degradation processes.
- ***Shoreline Clean-Up*** may be undertaken if sufficient hydrocarbons accumulate on shorelines to minimise impacts to shoreline and intertidal habitat impacts, and to reduce the likelihood of re-entrainment of hydrocarbons back into the marine environment.

6.4 POTENTIAL IMPACTS OF RESPONSE STRATEGIES

While spill response activities are intended to reduce the potential environmental impacts from a hydrocarbon spill, they can exacerbate or cause further environmental impact. In order to respond effectively to a hydrocarbon spill the following must be considered:

- Feasibility of the response option: time, availability, cost, benefit, local conditions.
- Impact of utilising the response option.

Natural processes, evaporation and decay (e.g. biodegradation and photo-oxidation) will mitigate a substantial proportion of spilled hydrocarbons. These natural recovery processes are likely to be the *de facto* primary response measure that will attenuate spill impacts in the event of a Tier 2 spill incident for this Activity. Although the maximum predicted shoreline loading was <22 tonnes, the next three maximum loadings were substantially less (1.9-2.1 tonnes). Nonetheless, Hess accepts a degree of uncertainty with regards to these predictions, and is prepared to mobilise resources to respond to a hydrocarbon spill to the marine environment.

In the event that response activities are required, poorly planned or executed responses can result in:

- Disturbance to marine fauna and flora from increased shoreline, vessel, and aircraft operations;
- Spreading of hydrocarbons further beyond the zone of contamination (e.g. secondary contamination from hull contamination of response vessels);
- Inadequate surveillance leading to poor information and unforeseen impacts; and
- Inappropriate response implemented and additional sensitive receptors impacted (e.g. shoreline clean-up for low loadings of highly weathered MDO).

Impacts associated with each of the selected response options are described next.

6.4.1 Vessel, Aircraft and Helicopter Operations

Most of the identified response strategies will be implemented primarily with the use of vessels and aircraft. The impacts and risks associated with vessel operations are summarised in Table 5-1, but will potentially generate a level of impact above that associated with the Activity. An increased level of impact could potentially occur during spill response from vessels (due to the number required for a response, and the duration of the response). To re-iterate, the impacts from vessel operations during a spill response include:

- Disturbance to heritage values/sites;
- Interference with other sea users;
- Noise generation from vessels;
- Emissions from exhaust gases from combustion;
- Liquid discharges from vessels;
- Solid waste from vessels;
- Unplanned hydrocarbon spills from vessel collision and deck spills;
- Interference with marine fauna;
- Seabed disturbance due to dropped objects; and
- Introduction of invasive marine species from vessels.

Light generation from vessels and helicopter operations are considered to not have material impacts.

6.4.2 Source Control

The control of the source of hydrocarbons spilled will not result in further impact to the marine environment in the event of a Tier 1 or Tier 2 spill as the activities will be undertaken on board the vessel in the event of a deck spill/leak or tank rupture. Oily wastes generated will be disposed of in accordance with the EP with wastes stored and disposed of onshore.

6.4.3 Monitor and Evaluate

No additional impacts are associated with this activity as it will be satellite and desktop-based, or vessel- and aircraft-based (see Section 6.4.1). Additional activities may include vessel-based monitoring during operational and scientific monitoring in proximity to shorelines and sensitive habitats that could lead to an increased possibility of behavioural and/or physiological impacts on marine fauna and other vessel related impacts (see Section 6.4.1).

6.4.4 Mechanical Dispersion

Mechanical dispersion activities could result in impacts as described for generic vessels (see Section 6.4.1). The use of vessels in the shallow waters outside of the Operational Area could lead to impacts on shallow habitats such as coral reefs and seagrasses because of vessel grounding, anchoring and propeller wash. In the event of vessel grounding, a MDO spill could occur.

6.4.5 Shoreline Clean-Up

Shoreline clean-up activities would impact shoreline, intertidal and adjacent terrestrial habitats and species through:

- Establishment and maintenance of forward staging areas for personnel, transportation activities (equipment and personnel across land with potential trampling of habitats and species) and poor waste management;
- Incorrect selection of shoreline response equipment could lead to the exacerbation of impacts as hydrocarbons could be inadvertently transported further into habitat therefore increasing recovery time;
- Incorrect waste management and transportation can result in impacts spreading from a contained area to habitat(s) above the shorelines that may not otherwise have been impacted from a spill; and
- Vessels utilised to transport personnel, equipment and waste can also lead to potential impacts on intertidal and shoreline habitats through increased risks to sensitive receptors (e.g. coral reefs, macroalgae and seagrasses) from vessel grounding, anchoring and propeller wash.

6.4.6 Oiled Wildlife Response

Oiled wildlife response activities, if not planned and implemented correctly, have the potential to increase impacts on marine fauna by increasing the risk of oiling. This can occur through the incorrect cleaning and handling of oiled wildlife, or driving wildlife into oiled areas that can increase the stress levels of the oiled wildlife and lead to lethal or sub-lethal impacts. Hazing could re-direct fauna into spill areas if not implemented correctly and could also result in collisions with marine fauna.

6.5 OIL POLLUTION EMERGENCY ARRANGEMENTS

Hess has the following emergency response arrangements in place:

- Hess is an associate member of the Australian Marine Oil Spill Centre (AMOSC) and have a call-off agreement to all relevant AMOSC equipment and resources;
- Hess is a participant member with Oil Spill Response Limited (OSRL) that offers guaranteed and immediate response, access to supplementary services and regional response services, and provision of resources (e.g. specialist personnel, oiled wildlife support, as well as many other ancillary services and equipment);
- Mutual Aid Memorandum of Understand (MOU) with other regional oil and gas operators to assist (including to source and mobilise offshore support vessels) in an oil spill situation; and
- Other support services such as 24/7 oil spill trajectory modelling and satellite monitoring services as well as ‘on-call’ aerial, marine, logistics and waste management support.

7 MONITORING AND REPORTING OF ENVIRONMENTAL PERFORMANCE

To ensure that Hess' environmental performance outcomes are achieved, contractors will be required to comply with all relevant requirements of Hess' EHS Policy and the commitments made in the EP. The implementation strategy for the EP includes:

- **Environmental Management System** that describes how work instructions, procedures and plans will be implemented and achieve the environmental performance outcomes for the Activity.
- **Key Roles and Responsibilities** for Hess and contractor personnel (onshore and offshore) in relation to implementation, management and review of the EP. Hess will use a variety of processes to brief contractors such as campaign briefings; desk-top exercises, provision of copies of the OPEP and EP; and general contractor management (setting up of contracts, scope of works, face-to-face meetings).
- **Competency, Training and Awareness** requirements for all Hess, vessel crew and other key personnel (e.g. geotechnical / geophysical contractor(s)) with responsibilities under the EP are described. Certifications are recorded in Hess and its contractors' record systems. Offshore crew and other key personnel involved in the GPGT Campaign will be made aware of the environmental requirements of the program (and the EP) via a project-specific induction prior to commencing the Activity. Regular vessel emergency response training (i.e. drills and exercises) conducted and daily onboard vessel meetings (e.g. pre-start, job hazard analysis, toolbox meetings) will reinforce environmental awareness during the Activity.
- **Monitoring, Recording, Auditing and Review** of the requirements of the EP will be carried out in the lead up to, during and after the Activity. Hess conducts reviews and audits of contractors at various stages including pre-award of contract, and prior to and during the Activity in accordance with its EHS&SR Management System. The following vessel audits and inspections are planned: pre-activity/pre-mobilisation EHS and condition audits of vessels; EHS inspections of the vessels during operations during the early stages of the GPGT Campaign; and annual EHS and condition audit of the vessels during the GPGT Campaign. The audits will be documented and corrective actions tracked to completion in accordance with the Hess Incident Reporting and Investigation Procedure.
- **Emergency Response** management and plans in the event of an environmental incident including testing and training prior to the Activity. In the event of a hydrocarbon spill incident, the Operational and Scientific Monitoring Plan will be implemented. The plan is critical for informing response management (e.g. situational awareness) and quantifying impacts (and recovery) to environmental sensitivities.

- **Monitoring and Reporting of Environmental Performance** in regards to routine reporting (e.g. performance report following completion of each discrete survey; annual environmental performance reporting; and at the end of the Activity – following completion of the entire GPGT survey campaign) and non-routine reporting (i.e. recordable and reportable incidents). Environmental performance monitoring, inspections and audits will be used to assure compliance. Records and reports will be stored for a period of five years upon completion of the entire GPGT survey campaign, including but not limited to the following:
    - Training – details of crew environmental inductions;
    - Waste management – quantities of waste landfilled, recycled, and discharged;
    - Fauna interactions – cetacean, whale shark and turtle sightings. Any interactions between marine fauna and vessels;
    - Invasive marine species – vessel clearance (if mobilising from outside of Australia waters);
    - Refuelling – details of vessel bunkering;
    - Geotechnical drilling fluids – chemical selection procedure for geotechnical drilling fluids;
    - Incident reporting – number and details of environmental incidents;
    - Compliance reporting – compliance with EP performance outcomes;
    - Maintenance – maintenance schedule for applicable equipment;
    - On-going consultation – records with stakeholders;
    - Emissions and discharges – oil in water discharge overboard from vessels >400 tonnes; waste from vessels; dropped objects; fuel use and associated atmospheric emissions; and sewage from vessels >400 tonnes.

7.1 CHANGES TO EP SCOPE

Identification and potential approval of changes to scope (e.g. timing, location or operations described in the EP) is the responsibility of the Hess Project Manager. A risk assessment will be undertaken for any change in scope in order to assess potential impacts of the change. If the change represents a significant modification that is not provided for in the accepted EP in force for the Activity, a revision of the EP will be conducted in accordance with Regulation 17(6) of the OPGGS (Environment) Regulations.

Hess' Management of Change (EP-MUD-STD-01000) will be used to ensure changes to approved work programs (e.g. systems, legislation, procedures, equipment, products, materials, planning and execution phases of survey activities, etc.) are properly considered, and approved if acceptable, by the appropriate personnel.

8 STAKEHOLDER CONSULTATION

Hess is committed to consulting with stakeholders who may be impacted by the GPGT Campaign. Consultation with potentially affected stakeholders has been undertaken to provide information on the Activity, to identify and understand any concerns and issues and to inform the development of the Activity, the EP and the OPEP as appropriately and practically as possible. Hess maintains a comprehensive project Stakeholder Register which lists all identified stakeholders, the individual contact details and a summary of the consultation undertaken to support the management of these relationships throughout the life of the Activity.

Stakeholders identified for the project are provided in Table 8-1. Each stakeholder was issued a background and description of the proposed activities. Where no response was received, a second communique was issued or follow up phone calls were made where contact numbers were available.

Table 8-1: Relevant stakeholders identified for the proposed GPGT campaign

Stakeholders	
A Raptis & Sons	Exmouth Chamber of Commerce and Industry
Austral Fisheries	Exmouth Exploration Pty Ltd
Australian Fisheries Management Authority (AFMA)	Exmouth Freight and Logistics (Toll IPEC)
Australian Hydrographic Office	Exmouth Game Fishing Club
Australian Institute of Marine Science	Finder No 7 Pty Ltd
Australian Institute of Petroleum	Flow Energy Pty Ltd
Australian Marine Conservation Society	Gascoyne Development Commission
Australian Marine Oil Spill Centre (AMOSC)	Jamaclan Marine Services
Australian Maritime Safety Authority (AMSA)	Karratha & Districts Chamber of Commerce & Industry
Australian Petroleum Production and Exploration Association (APPEA)	King Bay Game Fishing Club
Australian Southern Bluefin Tuna Industry Association	Marine Tourism WA
BHP Billiton Petroleum Pty Ltd	MG Kailis
Cape Conservation Group	Mobile Australia Resources Company Pty Ltd
Centre for Whale Research	North West Cape Exmouth Aboriginal Corporation
Chevron Australia Pty Ltd	North West Shelf Exploration Pty Ltd
City of Karratha (formerly Shire of Roebourne)	Pearl Producers Association
Commonwealth Fisheries Association (CFA) including the following Commonwealth managed fisheries associations: • Skip Jack Fishery; • Southern Bluefin Tuna Fishery; • Western Deepwater Trawl Fishery; • Western Tuna and Billfish Fishery; • North West Slope Trawl Fishery.	Western Australian Fishing Industry Council (WAFIC) including all licence holders in the following state fisheries: • Beche-de-Mer Fishery; • Gascoyne Demersal Scalefish Fishery; • Mackerel Managed Fishery; • Marine Aquarium and Specimen Shell Managed Fisheries; • Onslow Prawn Managed Fishery; • Pearl Oyster Fishery; • Pilbara Demersal Fish Trawl, Trap and Line Fisheries; • Pilbara Developing Crab Fishery; • West Coast Deep Sea Crustacean Managed Fishery.

Stakeholders	
Department of Defence (DoD)	Pilbara Development Commission
Department of Environment Regulation (DER)	Pilbara Ports Authority
Department of the Environment Offshore Assessment, Environmental Assessment and Compliance Division	Quadrant Northwest Pty Ltd
Department of the Environment Commonwealth Marine Reserves, Parks Australia Division	Recfishwest
Department of Fisheries (DoF)	Santos Offshore Pty Ltd
Department of Mines and Petroleum (DMP)	Shire of Exmouth
Department of Parks and Wildlife (DPaW)	Tap Oil Ltd
Department of Transport (DoT)	Westmore Seafoods and Shark Bay Seafoods
Esso Australia Resources Pty Ltd	Woodside Energy Ltd

Overall, there have been no objections and few specific issues or concerns raised by stakeholders regarding the proposed GPGT Campaign at the time of submission (Table 8-2). Stakeholders who provided feedback to Hess and those whom provided information or advice were responded to directly. Information provided by stakeholders was collated and provided in the EP. Information provided to Hess was assessed in the same manner as risks identified by Hess. A summary of key issues and concerns raised by stakeholders during consultation for the EP and how Hess has addressed these is provided in Table 8-2.

Hess considers it has undertaken best endeavours to understand and address matters raised, which are relevant to the scale, nature and duration of the proposed Activity. Hess recognise that stakeholders may continue to have an interest in the proposed Activity, particularly the timing and location of individual surveys once these are confirmed, and therefore Hess will maintain ongoing stakeholder engagement throughout the Activity as shown in Table 8-3, which provides for the flexibility to accommodate new stakeholders that may emerge.

Throughout the lifetime of the Activity, Hess will revisit the list of relevant stakeholders to ensure that it remains current and to identify any new stakeholders. This will be undertaken prior to Hess issuing any Activity Update. Activity updates will be issued to relevant stakeholders prior to mobilisation of each discrete survey. They will be issued allowing sufficient time for stakeholders to respond. Hess anticipates that Activity Updates will be issued not later than 12 months after the most recent Activity Update. However, in those years when more than one discrete survey is undertaken, several updates may be issued. Should Hess consider amendment to the approved EP or OPEP be required as a result of stakeholder feedback, Hess will seek to make these amendments in accordance with Regulation 17(6) of the OPGGS (Environment) Regulations. Hess will advise stakeholders of the response to the feedback provided and any resultant action taken.

Table 8-2: Summary of stakeholder holder responses received to date, Hess response and follow-up

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
Australian Marine Oil Spill Centre (AMOSC)	Consultation letter sent.	Response received 15/09/15. AMOSC responded stating that they anticipated that the targeted consultation would be in the form of advice to AMOSC regarding the use of AMOSC in the EP (and subordinate OPEP). The provision of the OPEP allows AMOSC to anticipate Hess' requirements in the event of a maritime incident where a spill is encountered. Further, if possible, provision of the OPEP to AMOSC is the style of consultation where AMOSC can then sign off that AMOSC has been properly consulted – this means we know what AMOSC need to provide to Hess under the compliance aspects of the OPEP. If Hess can do this, AMOSC will consent to AMOSC being properly consulted in accordance with the NOPSEMA guidance for Consultation – once they have read and considered their response obligations.	No objections raised or claims made.	Hess will forward a copy of the final OPEP to AMOSC so that AMOSC can consider Hess' requirements in the event of a Tier 2 marine diesel oil spill from the vessel-based activities.
Australian Maritime Safety Authority (AMSA) – Nautical Advice	Consultation letter sent	Response received 17/08/15. Advised future correspondence in relation to surveys, drilling and offshore activities are sent to nauticaladvice@amsa.gov.au. AMSA referred Hess to AMSA's Spatial@AMSA website (https://www.operations.amsa.gov.au/spatial) to obtain up-to-date information regarding shipping traffic patterns. In addition, shipping data can be downloaded from https://www.operations.amsa.gov.au/Spatial/DataServices/DigitalData. AMSA's response included a figure of the vessel traffic plot showing AIS data over the area of interest, noting that a charted shipping fairway traverses through the western section of the proposed area – this being the main commercial shipping traffic route for WA. It is worth noting that any related avoiding action by commercial shipping, should it be necessary, should not increase and/or compound the navigational risk to other shipping in the vicinity. The seismic vessel must display appropriate day shapes, lights and streamers, reflective tail buoys, to indicate the vessel is towing and is therefore restricted in her ability to manoeuvre. Visual and radar watches must be maintained on the bridge at all times. Further, ensure AMSA's Joint Rescue Centre (JRCC) is contacted through rccaus@amsa.gov.au for Auscoast warning broadcasts before operations commence. AMSA's JRCC will require the vessels details and area of operation and need to be advised when the survey starts and ends. Additionally, the Australian Hydrographic Service must be contacted through hydro.ntm@defence.gov.au no less than 4 working weeks before operations commence for the promulgation of related Notices To Mariners. At the conclusion of the survey, contact AMSA to comment on the operations and the interaction with commercial shipping at the time of the survey (i.e. any lessons learned).	No objections or claims made.	Hess notes the advice received and will ensure vessels display appropriate navigational display aids and that visual and radar watches are maintained onboard the bridge at all time. In addition, Hess will contact rccaus@amsa.gov.au for Auscoast warning broadcasts, before operations commence providing vessels details, area of operation and advise when survey starts and ends. In addition Hess will contact AHS through hydro.ntm@defence.gov.au no less than 4 weeks before operations commence for the promulgation of related Notices to Mariners.
Australian Southern Bluefin Tuna Industry Association	Consultation letter sent.	Response received 18/08/15. Thanked Hess for the opportunity to comment. The proposed campaign is outside of the area of primary concern for our industry's current operations therefore we have no grievances or concerns with the activities proposed.	No objections or claims made.	Not required.

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
BHP Billiton Petroleum Pty Ltd	Consultation letter sent.	Response received 27/08/15. Thanked Hess for advising BHPBP of the proposed campaign. The proposed activity will not impact on BHP Billiton's activities and we require no further information.	No objections raised or claims made.	Not required.
Chevron Australia Pty Ltd	Consultation letter sent.	Letter received (22/09/2015) acknowledging receipt of information stating: Chevron's key area of concern is the area near the Wheatstone/Lago fields, as construction/installation and commissioning activities will be taking place until at least the second quarter of 2016. Chevron requests Hess give due notice and provide details of their activities prior to commencement particularly for any surveys planned near either the Wheatstone or Janz trunkline and especially if they plan to come into the Janz Io or Wheatstone/Iago fields. This notice must include details of equipment to be used and location of such equipment on the seabed, if applicable. Once notified, Chevron will advise Hess if Hess can do their work in the area and what exclusion zones will apply. Further, Chevron expects the following from Hess when conducting any activities within Chevron's permit areas: 1. Hess is responsible for ensuring that all relevant governmental rules and regulations which apply to the conduct of a marine geophysical operation in the area of the Title will be complied with. 2. All work is to be undertaken at the sole risk and expense of Hess. Hess will take all reasonable steps to avoid any conflict with Chevron's and the Titleholders' operations in the Title area. 3. Hess will indemnify the Titleholders and their employees, directors, officers, agency and contracts of any tier, against all and any cost, expense, claim or liability ("Claims") for personal injury or death, loss/damage to property, and environmental incidents etc. 4. Hess shall provide notification to Chevron of intended commencement date of the acquisition with the Title at least 7 days prior to such date and advise Chevron of any material change to schedule and upon conclusion of the surveys. 5. Hess shall maintain all insurances as required by law, including workers compensation insurance; any insurances as required by the conditions of Hess' access authority; and comprehensive marine protection and indemnity insurance in connection to pollution, vessel collision and wreck/debris removal. 6. Hess shall promptly advise Chevron of all reportable environmental incidents in the Title area that arise from Hess' survey operations.	No objections raised or claims made.	Not required.

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
City of Karratha (formerly Shire of Roebourne)	Consultation letter sent.	Response received via email 24/6/15 stating the City of Karratha has no comments to make.	No objections raised or claims made.	Not required.
Department of Defence (DoD)	Consultation letter sent.	Thanked Hess for the opportunity to comment. Defence reviewed the information provided and has no objections to the proposed activities, however noting that Hess should be aware that part of the area is underneath restricted Airspaces R862 and R853. Further, Defence advised that: • All exploration activities in the area are conducted at its own risk; and • The Commonwealth of Australia, represented by the Department of Defence, takes no responsibility for: • i) reporting the location and type of UXO that may be in the areas; • ii) identifying or removing any UXO from these areas; and • iii) any loss or damage suffered or incurred by Hess or any third party arising out of or directly related to, UXO in the area. To ensure the activities do not conflict with Defence training in Restricted Airspaces R862 and R853, Defence requires a minimum of 14 days notification should any aviation activities be contemplated, Notification should be to Joint Airspace Control Cell contactable on 1800 652 222 or ADF.Airspace@defence.gov.au. Further, Defence requested continued liaison with the AHS who must be notified a minimum of three weeks prior to the actual commencement of each survey to ensure maritime safety, and reduce negative impact on other maritime users. AHS is contactable through the Manager Nautical Assessment and Maintenance, Mr Mark Bolger, on (02) 4223 6590 and/or at http://hydro.gov.au/aboutus/contact.htm.	No objections or claims made.	Hess notes the advice received. Hess acknowledges that part of the Operational Area is underneath restricted Airspaces R862 and R853 and as such Hess will notify Defence should any aviation activities be contemplated, no less than 14 days prior. Hess will contact AHS through hydro.ntm@defence.gov.au no less than 4 weeks before operations commence for the promulgation of related Notices to Mariners. Further Hess acknowledged the Defence advice regarding UXO.
Department of Environment Regulation (DER)	Consultation letter sent.	Response received 15/09/15. The Department responded stating that all correspondence of this nature should be sent for the attention of the Chief Executive Officer at info@der.wa.gov.au or to Locked Bag 33, Cloisters Square, WA 6850. The correspondence was forwarded on. No further response received at time of EP submission.	No objections raised or claims made.	Not required.
Department of the Environment Offshore Assessment, Environmental Assessment and Compliance Division	Consultation letter sent.	Response received 15/09/15. Thanked Hess for contacting the Department. The Department responded: If your email is in relation to offshore petroleum and greenhouse gas activities in Commonwealth waters:	No objections or claims made.	Not required.

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
		The Minister for the Environment has decided that offshore petroleum or greenhouse gas activities in Commonwealth waters no longer need to be referred to the Department of the Environment for assessment under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Environmental protection for these matters is now examined by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Further information on the Minister's decision is available at: http://www.environment.gov.au/node/25719. NOPSEMA's website and contact details are available at: http://www.nopsema.gov.au/ If your email is in relation to consultation with "relevant Commonwealth agencies": Under NOPSEMA's assessment process, titleholders are required to consult with each Department or agency of the Commonwealth to which the activities to be carried out under an environment plan, or the revision of an environment plan, may be relevant. The Department of the Environment is not a relevant agency for consultation under the Offshore Petroleum and Greenhouse Gas (Environment) Regulations 2009 (Regulations), as NOPSEMA's authorisation process encompasses the functions, interests and activities of the Department. Commonwealth agencies that may be relevant for consultation purposes under the Regulations can be accessed here: http://www.environment.gov.au/system/files/pages/06872cd4-b755-4ecf-a4e7-dd16145e1384/files/offshore-australian-government-guidance-roles-relevance_0.pdf If your email is in relation to petroleum and/or greenhouse gas activities in state or territory jurisdictions: Petroleum and/or greenhouse gas activities in state or territory jurisdictions (or partly in Commonwealth waters and partly in state or territory jurisdictions) that may have a significant impact on any matter of national environmental significance still need to be referred under the EPBC Act. For more information on referrals and assessments under the EPBC Act, see the Department's website here: http://www.environment.gov.au/protection/environment-assessments Please Note: Petroleum and greenhouse gas activities may also require a permit under the Environment Protection (Sea Dumping) Act 1981 (Cth). For more information, see the Department's website here: http://www.environment.gov.au/marine/marine-pollution/sea-dumping If your email is in relation to another issue, the Department will respond shortly.		
Department of the Environment Commonwealth Marine Reserves, Parks Australia Division	Consultation letter sent.	Response received 15/09/15. Thanked Hess for the information. Based on information on the proposed offshore geophysical and geotechnical surveys in the Northern Carnarvon Basin, the Marine Protected Areas Branch of Parks Australia advised that the survey area intersects the boundary of the Montebello Commonwealth Marine Reserve which is an IUCN VI Multiple Use Zone. Further, the reserve is currently managed under transitional management arrangements until a	No objections raised or claims made.	Not required.

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
		management plan comes into effect. Under the transitional arrangements, there are no changes on the water for users of new areas added to the Commonwealth marine reserves estate. The Director of National Parks has issued a general approval to implement the transitional management arrangements. The general approval for the North-west Commonwealth Marine Reserves Network provides for mining operations (including seismic surveys) and commercial vessel transit to continue while a management plan is prepared. More information is available at: http://www.environment.gov.au/topics/marine/marine-reserves/north-west/montebello-management		
Department of Fisheries (DoF)	Consultation letter sent. Follow-up telephone conversation.	Response received querying the size of Operational Area and if surveys intended only in Permit Areas WA-474-P and WA-390-P. Formal letter received dated 29/9/15 summarised as follows: The Department's advice is valid for 6 months from dated letter. If proposed activities have not commenced within 6 months, the Department requires Hess to consult with them again a minimum of three months prior to the commencement of the activities to determine if there are any significant changes to the information provided. The Department provided advice on State commercial fisheries in, or in close proximity to, the proposed activities; noting that customary, recreational and charter fishing may also occur within the proposed area of activities. The Department recommended that Hess maintain on-going contact with WAFIC, RecfishWest and directly with fishers about the proposed activities. The Department requested that strategies be provided to address potential impacts to fish, fisheries and fish habitats along with strategies to minimise impacts. The Department requested Hess use its new biofouling risk assessment Vessel Check tool and Hess forward biosecurity risk information provided by the Department to vessel managers/operators associated with the project, and requested that the suspected or confirmed presence of marine pest or disease into WA waters be reported to FishWatch within 24 hours.	Telephone conversation with DoF held 16/9/15. DoF responded that DoF will check their databases to ensure that all relevant legal fisheries potentially effected within the OA are captured in their response	Hess explained that the broad spatial nature of the Operational Area reflects the range of potential development options within the Northern Carnarvon Basin. These are not limited to the 2 exploration permits held by Hess, but may in time come to include other acreage, and provide options for tie-in with existing sub-sea infrastructure. Hess contacted DoF (communication dated 12/11/15) stating that Hess acknowledges the Department's advice which has been taken into consideration in the preparation of the EP. Hess understands that the advice is valid for 6 months and/or the duration of the EP. If the proposed activities do not commence within 6 months, Hess will initiate further consultation with the Department a minimum of 3 months prior to the commencement date.

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
				Hess telephone call to DoF to explain that letter of 12/11/15 was scheduled to take into account the details of the NOPSEMA Request for Further Written Information and to ensure that the EP and further written information addressed issues in the original DoF letter. DoF subsequently acknowledged receipt of Hess letter of 12/11/15.
Department of Mines and Petroleum (DMP)	Consultation letter sent.	Response received 21/08/15. Thanked Hess for the notification regarding the proposed Campaign. DMP recommends: • Hess adopt appropriate measures to minimise impacts on marine fauna in the Operational Area from risks of sound/noise exposure. • Hess select drilling fluids that have low toxicity, readily biodegrade and are not expected to bio-accumulate, where practicable. Hess does not require any further information at this time. Should the activity proceed, please provide DMP with a pre-start notification confirming the start date of survey activities approximately one week prior to commencement and a cessation notification to inform DMP upon completion. In regard to future notifications to DMP (i.e. consultation on proposed activities in Commonwealth Waters), all correspondence should be sent to: petroleum.environment@dmp.wa.gov.au and note that DMP no longer requires hard copies.	No objections raised or claims made.	Hess notes the advice received with respect to adopting appropriate measures to minimise impacts on marine fauna in the Operational Area from risks of sound/noise exposure, and the selection of drilling fluids. Hess will provide DMP with future notifications via petroleum.environment@dmp.wa.gov.au.
Department of Parks and Wildlife (DPaW)	Consultation letter sent.	Response received 20/08/15. Thanked Hess for the opportunity to comment. The Department reviewed the information provided and did not wish to make any comments.	No objections raised or claims made.	Not required.
Department of Transport (DoT) - Navigational Safety	Consultation letter sent.	Response received 15/09/15. Thanked Hess for the correspondence. Response provided by DoT stating: As these proposed geophysical and geotechnical surveys will be carried out in offshore waters beyond DoT's jurisdiction, any required notices will be promulgated by the Australian	No objections raised or claims made.	Hess thanked the Department for their response, stating that their stakeholder list will be updated accordingly.

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
		Hydrographic Office. Please also add the following email addresses to your stakeholder list to include in any further correspondence and notifications by email to: DoT Regional Services Exmouth Office: Daren.Hutchins@transport.wa.gov.au David.Skene@transport.wa.gov.au DoT Regional Services Karratha Office: Sue.Lannin@transport.wa.gov.au John.Drummond@transport.wa.gov.au DoT Harbour Master: Steven.Wenban@transport.wa.gov.au		
Esso Australia Resources Pty Ltd	Consultation letter sent. 2nd consultation letter sent 5/10/15. Follow up phone call.	Response letter received 19/10/15. Esso responded with no issues.	No objections raised or claims made.	Not required.
Exmouth Chamber of Commerce and Industry	Consultation letter sent. Follow up phone call	Response received 15/09/15. Thanked Hess for the correspondence. Responded with no issues.	No objections raised or claims made.	Not required.
Exmouth Freight and Logistics (Toll IPEC)	Consultation letter sent.	Response received 14/08/15. No comment other than providing Hess with Capability Statement material.	No objections raised or claims made.	Not required.
Finder No 7 Pty Ltd	Consultation letter sent.	Finder no 7 Pty Ltd is the titleholder of WA-500-P and we would normally expect the issues raised below to be addressed in an ingress agreement, but we recognise that Hess is not required to enter into such an agreement as the proposed activities are not “petroleum activities” per se. However, Finder seeks assurance to be notified at least two weeks prior to commencement of your proposed activities within WA-500-P, to ensure that there is no conflict with any of our operational activities. If Finder is of the reasonable opinion that the Hess activities will result in a conflict with our operations Hess will amend or cease their activities until the conflict is resolved	No objections to the activity.	Hess responded via email to acknowledge the submission by Finder No 7 Pty Ltd

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
		or no longer exist. Finder seek further assurance from Hess that: 1. Any work shall be carried out entirely at the risk and expense of Hess; 2. Hess will defend, release and indemnify Finder and its related bodies corporate (as that term is defined in the Corporations Act 2001 (Cth)) and each of their respective officers, employees, directors, agents and contractors of any tier against all and any costs, expenses, fees (including, without limitation, attorneys' fees and costs of dispute resolution), claims, demands, judgments, fines, penalties, losses, damages or liability of any kind arising out of or related to your proposed activities, including, without limitation, for any: (a) injury, death or illness of any person; (b) loss or damage to any property of any person or entity; (c) pollution or environmental incident, loss or damage, including clean-up costs and statutory penalties; and (d) costs, expenses or other liability arising out of any failure by Hess to obtain all required Government approvals for the carrying out your activities or to comply with the requirements of any laws, regulations or rules applying to your activities, Finder bears no liability for loss or damage to any vessels, property or equipment used for and during your activities except to the extent such loss or damage is caused directly or indirectly by Finder; 3. Hess shall comply with all applicable laws which apply to the conduct of any activities 4. Hess will promptly advise Finder of all reportable environmental incidents in WA-500-P which arise as a direct result of your activities; and 5. Hess shall maintain all requisite insurances as required by law and any other insurances which would be effected by a prudent operator conducting the activities.		
Jamaclan Marine Services	Consultation letter sent.	Response received 13/08/15 with no comment stating that that they no longer represent any stakeholders in the area.	No objections raised or claims made.	Not required.
King Bay Game Fishing Club	Consultation letter sent. 2nd follow up email sent Sept.	Response received 16/09/15 thanking Hess for the information and stating at this stage the area of the survey will have minimal impact on the anglers of the Dampier area and so the Game Fishing Club has no comments to make on Hess' proposed activities. Requested they be kept informed.	No objections raised or claims made.	Not required.

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
MG Kailis	Consultation letter sent. 2nd follow up email sent Sept.	Response received 16/09/15 thanking Hess for the information and stating the project does not impact on MG Kailis operations.	No objections raised or claims made.	Not required.
North West Cape Exmouth Aboriginal Corporation	Consultation letter sent. Telephone call discussion on 19/10/15.	Hess received telephone call by stakeholder on 13/10/15. 19/10/15 Hess followed up telephone call. Stakeholder raised no concerns in relation to the Activity.	No objections raised or claims made.	Hess will continue to consult with stakeholder as part of ongoing consultation.
North West Shelf Exploration Pty Ltd (MEO Australia Ltd)	Consultation letter sent.	Email received 16/09/15 acknowledging receipt of correspondence and stated at this stage that they do not require any additional information or clarification.	No objections raised or claims made.	Not required.
Pilbara Ports Authority	Consultation letter sent.	Response received 15/09/15 stated Pilbara Ports Authority has no issues.	No objections raised or claims made.	Not required.
Quadrant Northwest Pty Ltd	Consultation letter sent.	Response received 5/10/15 with no objections or concerns.	No objections raised or claims made.	Not required.
Woodside Energy Ltd	Consultation letter sent.	Response received 12/11/15 with no objections but requested where survey activities are to occur within the vicinity of assets operated by Woodside, Hess engage with relevant Woodside Asset Managers. In addition where Hess survey activities are to occur well away from Woodside-operated infrastructure, but within Woodside-operated titles, Woodside would be pleased to receive proposed activity information from Hess for coordination of activities.	No objections raised or claims made.	Not required.
Shire of Exmouth	Consultation letter sent.	Email response with letter received 16/09/15. Acknowledged receipt of information and confirm that Shire are satisfied with the information provided and no not require anything further.	No objections raised or claims	Not required.

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
			made.	
Bernard John and Lena Margaret Lippi and Rosscommon Nominees Pty Ltd	Consultation letter sent. 2nd letter sent early Sept.	Response received 6/10/15 stating no concerns as they do not fish in that area.	No objections raised or claims made.	Not required.
Golden Swan Investments	Consultation letter sent. 2nd letter sent early Sept.	Response received 6/10/15 stating no concerns as they do not fish in that area.	No objections raised or claims made.	Not required.
Raymond MC Alpine Walker	Consultation letter sent. 2nd letter sent early Sept.	Response received 25/9/15 by way of returned consultation letter signed 'acknowledged'.	No objections raised or claims made.	Not required.
MN & LJ Manifis	Consultation letter sent. 2nd letter sent early Sept.	Hess consultation letter returned 'Return to Sender' on 24/9/15 – No longer at address. Hess re-confirmed contact details with DoF database prior to issuance of 2nd letter. No response received to date.	N/A	Not required.
Brian Douglas McClymans	Consultation letter sent. 2nd letter sent early Sept.	Response received via email 28/9/15 acknowledging receipt of letter and stating 'no issues with the proposal'.	No objections raised or claims made.	Not required.
Mr Philip John Gallanagh	Consultation letter sent. 2nd letter sent early Sept.	Response received via email 22/9/15 stating no comments.	No objections raised or claims made.	Not required.
Mr Johan Pas	Consultation letter sent. 2nd letter sent early Sept.	Response received 24/09/15 stating that does not intend to carry out any fishing in the area, so have no comments to make nor is it necessary for Hess to send any more information regarding the Activity.	No objections raised or claims	Not required.

Stakeholder	Consultation activity	Stakeholder response	Stakeholder objections or claims	Hess response
			made.	
Mr Martin Tabe Testerink	Consultation letter sent. 2nd letter sent early Sept.	Response received 22/09/15 stating that he doubts it will affect his flora and fauna collection possibility allowed under his marine aquarium fishing licence.	No objections raised or claims made.	Not required.

Table 8-3: Ongoing stakeholder engagement program

Stakeholder	Activity	Purpose of Engagement	Timing
All identified stakeholders	Letter/ Email	Advise stakeholders of NOPSEMA approval of the EP and OPEP directing stakeholders to the summary of the EP. Provide further opportunity for stakeholders to raise queries and further comment.	Commence within four weeks following NOPSEMA approval of the EP.
	Letter/ Email	Activity Update Fact Sheets issued prior to mobilisation of each discrete survey. Hess anticipates that 'Activity Updates' will be issued not later than 12 months after the most recent 'Activity Update'.	Ongoing throughout the Activity prior to mobilisation of each discrete survey, allowing sufficient time for stakeholders to respond.
Organisations involved in emergency response (AMOSC, AMSA, DoT, OSRL)	Email	Provide notification when survey vessels have been contracted, survey locations and timing of operations. Consultation regarding emergency spill response activities.	Commence within one week after the vessels has been contracted.
NOPSEMA and DMP	Written Notification	Formal notification that the Activity is about to commence, to confirm start date, and after its completion.	At least 10 days before the Activity commence, and as soon as practicable no later than 10 days after the completion.
Joint Rescue Coordination Centre (AMSA)	Email	Contact for Auscoast warning broadcasts. Provide notification of survey vessel details and timing/location of operations. Advise when individual surveys are completed.	Commence no less than two weeks prior to commencing of individual surveys and at completion of each survey.
Australian Hydrographic Service (Department of Defence)	Email	Provide notification of survey locations and timing of operations for promulgation of Notice to Mariners.	Commence no less than four weeks prior to commencing individual surveys and at completion of each survey.

9 TITLEHOLDER AND LIAISON PERSON DETAILS

9.1 TITLE HOLDER

Name: Hess Exploration Australia Pty Ltd

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Fax Number: + 61 8 9426 3050

Email: Perth.Reception@Hess.com

ACN: 126 805 963

9.2 NOMINATED LIAISON PERSON

For further information about this Activity, please contact:

George Lumsden – General Manager, Australia

Hess Australia Pty Ltd

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