Mutineer Exeter Well Workovers

ENVIRONMENT PLAN SUMMARY

MUEX-2000-PLN-0004

Rev	Date	Reason for issue	Author	Checked	Approved
1	27/03/14	To NOPSEMA for public disclosure	O Glade-Wright	I Somerville	R Hikmat
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ABBREVIATIONS & ACRONYMS

AHS	Australian Hydrographic Service
AIS	Automatic Identification System
ALARP	As Low As Reasonably Practicable
AQIS	Australian Quarantine Inspection Service (Cth)
BOP	Blowout Preventer
DCMS	Drilling & Completions Management Standard (Santos)
DoE	Department of Environment (Cth)
DoT	Department of Transport
DPAW	Department of Parks and Wildlife
EHS	Environment Health & Safety
EHSMS	Environment Health & Safety Management System
EP	Environment Plan
FPSO	Floating Production Storage and Offloading Unit
GDA	Geodetic datum of Australia
IAPP	International Air Pollution Prevention
ISO	International Standards Organisation
JHA	Job Hazard Analysis
IWCF	International Well Control Forum
MARPOL	International Convention for the Prevention of Pollution from Ships
ME	Mutineer Exeter Development
MGA	Map Grid of Australia
MODU	Mobile Offshore Drilling Unit
NEBA	Net Environmental Benefit Analysis
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NWS	North West Shelf
OPGGS	Offshore Petroleum and Greenhouse Gas Storage
OSCP	Oil Spill Contingency Plan
OSMP	Operational and Scientific Monitoring Program
OSRA	Oil Spill Response Atlas
OWS	Oily Water Separator
PMP	Preventative Maintenance Program
PSZ	Petroleum Safety Zone
RAAF	Royal Australian Air Force
ROV	Remotely Operated Vehicle
SOPEP	Ship Oil Pollution Emergency Plan
WA	Western Australia
WOMP	Well Operations Management Plan

1 Introduction

Santos Limited (Santos) is the operator of the Mutineer Exeter Development (ME), which is situated on Western Australia's North West Shelf (NWS) at the northern end of the Dampier Sub-Basin (Figure 1). The development consists of four fields; Mutineer, Exeter, Fletcher and Finucane which produce light crude and are tied into the MODEC Venture 11 (MV-11) Floating Production Storage Offloading (FPSO) facility.

This Environment Plan (EP) Summary covers well workovers with a mobile offshore drilling unit (MODU) within the ME development area which incorporate Petroleum Production Licences WA-26-L, WA-27-L and WA-54-L.

The workovers will be conducted in accordance with all applicable legislation and regulations and specifically to meet the requirements of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* and its regulations.

In accordance with Regulation 6(1) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (OPGGS (Environment) Regulations), an accepted Environment Plan (EP) is required by the operator before carrying out an activity. The term "*Petroleum activity*" is defined under Regulation 4(1) of the OPGGS (Environment) Regulations. For the ME Well Workovers the petroleum activity is undertaking up to four workovers on existing ME development wells where the well is required to be re-entered using a MODU.

This EP Summary has been prepared in accordance with Regulation 11 (7) and (8) of the OPGGS (Environment) Regulations.

2 Activity Location

The ME Development is located within Commonwealth waters on the North West Shelf, approximately 150 km north-north-east of Dampier.

The location of the activity, referred to as the 'operational area', is defined by the location of the petroleum instruments WA-26-L, WA-27-L and WA-54-L, as shown in Figure 1. Coordinates of the wells within this area are shown in Table 1.

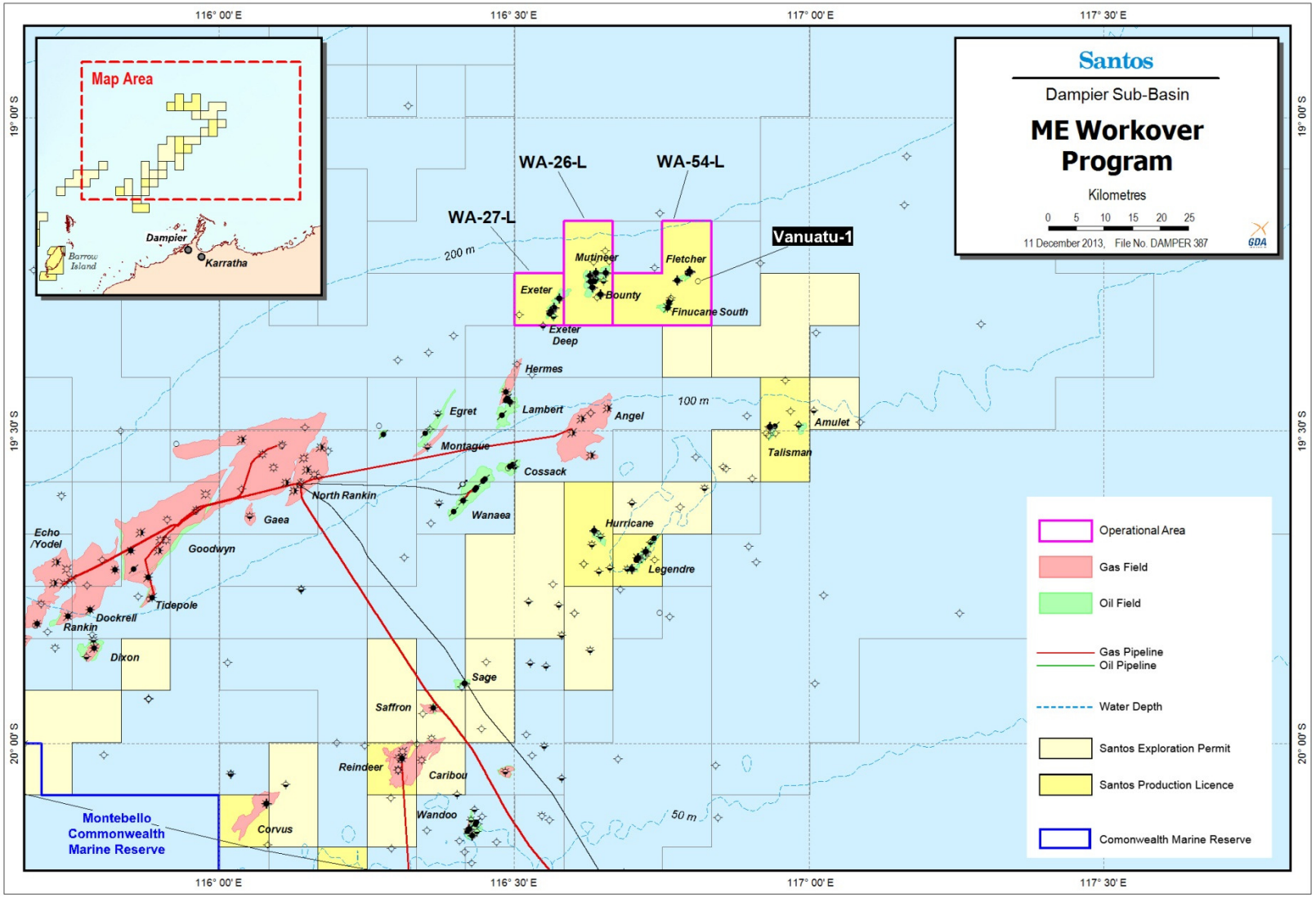

Figure 1 ME Workovers Location

Table 1 Well Coordinates

	Coordinates*					
	Latitude			Longitude		
	degrees	minutes	seconds	degrees	minutes	seconds
Exeter-4AH	19	18	36.1908	116	33	40.6584
Exeter-8	19	18	36.28	116	33	41.1192
Finucane-2H	19	17	34.08	116	45	49.41
Finucane-3H	19	17	35.8116	116	45	50. 4792
Fletcher-5H	19	14	46.2084	116	47	43.8612
Mutineer-4	19	45	32.1984	116	38	15.3204
Mutineer-5	19	15	32.7492	116	38	15.2916
Mutineer-15	19	15	33.2784	116	38	15.2916
Muntineer-12	19	15	33.7716	116	38	16.35
Mutineer-9H	19	15	33.48	116	38	15.8388

* GDA 94, MGA 50

3 Description of the Activity

The activities associated with well workovers are varied, however, the major components associated with the activities are:

1. Positioning / anchoring the MODU;
2. Well intervention (isolating, killing and securing the well);
3. Well work over / maintenance activities such as removal and replacement of completion string and wellbore clean-up activities; and
4. Support operations such as ROV, vessel operations and helicopter transfers.

The workovers are scheduled to be undertaken during 2014 (subject to approvals, rig availability and weather). Each well workover is anticipated to take approximately 30 days.

The MODU will be supported by up to three support vessels for the duration of the activity.

The support vessels will fulfil the following functions:

- Tow the rig to and from location;
- Run and pull anchors for MODU mooring;
- Supply fresh water, food, fuel, and bulk completions fluid materials and completions equipment;
- Monitor a nominated petroleum safety zone (PSZ) around the MODU and intercept errant vessels; and

- Assist in emergency response functions.

The Port of Dampier will be used as the supply base. Personnel will access the MODU via helicopter that will be based in Karratha. Helicopter refuelling will occur only at the Karratha heliport – there is no provision for helicopter refuelling on the MODU for this campaign.

4 Description of the Receiving Environment

To describe the existing environment two areas were identified based on the spatial extent of potential hazards associated with operational activities and spill events. For operational activities the operational area was identified as the permit boundaries, as shown in Figure 1. For spill events a wider NWS regional area was used.

A summary of the existing environment within the operational area and key localities within the regional area is detailed in Table 2.

Table 2 Receiving Environment Summary

	Operational Area	Regional Area								Particular Values Or Sensitivity
		Dampier Archipelago	Dampier/Onslow Coast	Montebello Islands	Barrow and Lowendal Island	Nearshore Is (includes Thevenard & Serrurier Is b/w Dampier & Exmouth)	Ningaloo Coast (including Murion Islands)	Rowley Shoals	General Offshore Environment	
Benthic Receptor										
Coral Reef Communities		x		x	x	x	x	x		• Shallower waters within the regional area contain an array of small barrier reefs, including important sites such as the Dampier Archipelago. • Rowley Shoals consist of 3 atoll reefs that support enhanced biological productivity and include unique sponge faunal assemblages. • Barrow/Montebello/Lowendal Islands and many of the nearshore Islands between Dampier and Exmouth are fringed with coral reefs. • Ningaloo coral reefs are diverse and represent the 2nd largest reef system in Australia.
Seagrasses		x		x	x	x	x			• Barrow (east and south) Montebello/Lowendal (east, west and south) sparse patches interspersed between macroalgae. Important food source for dugongs. • Dampier archipelago sparse patches found between Keast and Legendre islands and between West Intercourse Island and Cape Preston (CALM & MPRA, 2005). • Ningaloo - generally patchily distributed within the reserves (CALM & MPRA, 2005).
Soft Sediment	x								x	• Operational area is featureless with a flat bottom and fine to medium grained sands (Neptune Geomatics, 2011). • Sediment texture within the region is relatively homogenous and dominated by sands, with a small proportion of gravels. Muds increase within 100 km of the coast and within 100 km of the shelf break but is mostly absent from the area.

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Pelagic (Marine) Receptors										
Whales	x	x		x	x		x	x	x	• Listed threatened and migratory humpback whales likely to be present in the operational area with migration route present in regional area. • Southern right and blue whales may be present but no important aggregation, feeding or calving areas have been identified in the region. • Montebello, Lowendal and Barrow Islands are resting areas for humpbacks.
Dolphins	x		x	x	x				x	• Listed migratory Indo-Pacific and spotted bottlenose dolphins are known to occur along north Australian coast to Exmouth Gulf (DSEWPC, 2012a; DSEWPC, 2012b). • Spotted bottlenose - no known aggregation or breeding areas in the region. • Indo-Pacific humpback dolphin – known resident populations at Montebello, Lowendal and Barrow Islands.
Dugongs		x	x			x	x			• Small populations observed in seagrasses around the Dampier Archipelago between Keast and Legendre islands and between West Intercourse Island and Cape Preston. • Significant sightings and feeding grounds around Montebello Islands. • Sightings around Murion, Serrurier Islands and Ningaloo (Woodside, 2005). • Large population along eastern side of Exmouth Gulf which is a biologically important dugong habitat area (DoE).
Marine Reptiles	x	x	x	x	x	x	x		x	• Listed threatened and migratory loggerhead, green, leatherback,

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										hawksbill and flatback turtles known to occur in the region. • Murion critical nesting and interesting habitat for loggerhead turtles, major green turtle rookery. • Serruier Island major nesting and foraging area for green turtles. • Thevenard flatback rookery, green turtle rookery and feeding area. • Montebello, Lowendal and Barrow Islands critical nesting and internesting habitat for green, flatback, and hawksbill turtles, occasional nesting by loggerhead turtles at Barrow. • West of Barrow and within the Montes summer green turtle mating aggregation. • Rosemary Island and the Dampier archipelago provide critical nesting and interesting habitat for flatback turtles, and most significant hawksbill rookery in WA. Also support major green and flatback nesting sites. • Waters to the south of Barrow Island include feeding and foraging areas for green and hawksbill turtles. • No threatened or migratory sea snakes are likely to occur in the region.
Fish and Sharks	x	x	x	x	x	x	x	x	x	• Listed threatened and migratory whale shark may occur in the operational area and region and significant aggregation area around Ningaloo Coast (March – June). • The migratory short and long fin mako sharks are also likely to occur in the operational area and the region but there are no known aggregation, feeding or breeding areas. • Rowley Shoals have diverse fish and shark assemblages.
Seabirds and Shorebirds	x			x	x	x		x		• The Dampier Archipelago region provides important undisturbed nesting/breeding/refuge sites for listed migratory species.

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										• Montebello, Lowendal and Barrow Islands are internationally significant sites for breeding for migratory shorebirds • Rowley Shoals – sandy cays provide important resting and feeding sites for migratory species. Red tailed and white-tailed tropicbirds and little terns breed in the area.
Shoreline Receptors										
Rocky Shoreline		x	x	x	x		x	x		• No rocky shorelines in the operational area. • Rocky shores are common throughout the region.
Mangroves		x	x	x	x	x	x			• No mangroves in the operational area. • Mangroves are common in the region, fringing the coast and near shore islands. • Montebello mangroves considered globally unique as they occur in lagoons on offshore islands.
Sandy Beaches		x	x	x	x	x	x			• No sandy beaches in the operational area. • Sandy beaches are found within the region and are predominantly surrounded with a fringing coral rim. This is representative of most of the islands in this region. • Thevenard and Airle Islands have been mapped (OSRA) as being fringed with fine to medium grained sandy beaches.
Socio-Economic Receptors										
Settlements		x	x		x	x	x			• Key Settlements in the region include Dampier, Onslow, Exmouth.
Tourism and Recreation		x	x	x	x	x	x	x	x	Key tourism and recreational activities include in the region include; • Whale watching; • Recreational boating and fishing; • Charter fishing;

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										• Snorkelling/diving; • Surfing; • Montebello – small seasonal charter vessel tourism industry operates between April and November; • Ningaloo - significant area for nature based tourism; and • Dampier – activities are concentrated around population centres such as Dampier, Onslow, Point Samson where there are boat launching facilities.

Commercial Fisheries		x	x	x	x	x	x	x	x	• Licenced fisheries overlap with the operational area, however, no activity was no was recorded in the operational area in 2012/2013.
										• The following State and Commonwealth fisheries were active in the regional area in 2012/2013:
										  • North West Slope Trawl Fishery (Region – west of the 200m isobath and operational area)
										  • Western Tuna and Billfish Fishery (Region – north of the Rowley Shoals)
										  • Pilbara Demersal Scalefish Fishery (Region – east of operational area)
										  • Mackerel Fishery (Region – east of operational area around coastal areas, reefs, shoals and headlands)
										  • North Coast Prawn Managed Fishery (Region – east of the operational area from Broome to Onslow)
										  • Pearl Oyster Fishery (Region – east of the operational area in shallow coastal waters)
										• Bluefin Tuna spawning ground to the north-east of the operational area.
										• Mackerel may spawn in coastal areas within the region.

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Recreational Fisheries		x	x	x	x	x	x	x	x	• Montebello group is a significant area for recreational fishing. • Waters off Ningaloo Reef and the Muiron Islands considered an important fishing location largely concentrated around major settlements at Coral Bay and Exmouth and boat ramps at Tantabiddi and Bundegi. • Dampier/Dampier Archipelago area is well utilised by recreational fishers.

Petroleum Exploration and Production	x								x	• The Mutineer-Exeter Development of which the workover wells are associated is within the operational area.
										• Key developments in the region include:
										  • The NW Shelf Joint Venture;
										  • Gorgon and Wheatstone developments; and
										  • Pluto Development.

Shipping									x	• Ports at Dampier, Onslow and Cape Lambert are in the regional area. • Dampier Shipping Fairway is approx. 3.3 km west of the operational area.
Defence Activities	x				x	x	x		x	• The Learmonth RAAF base maintains a restricted airspace area, which overlaps the region.
Cultural heritage		x								• There are no registered Aboriginal Heritage sites within the operational area. • There are many registered Aboriginal Heritage sites in the region along the coast line and on the nearshore islands, including Barrow and Montebello Islands and around the Dampier Archipelago. • The Dampier Archipelago is on the National Heritage list in recognition of the outstanding collection of rock art and engravings.

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Maritime Heritage		x	x		x	x	x		x	• There are no protected shipwrecks present in the operational area. • There are a number of registered shipwrecks in the regional area with at least 51 shipwrecks registered in the Dampier region around Butchers Inlet, Flying Foam Passage, Nickol Bay, Barrow Island and Roebourne. • There are also registered shipwrecks along the Ningaloo coast.
Protected Areas										
World Heritage Sites							x			• The Ningaloo Coast World Heritage Area is the only World Heritage Area in the region. • It was listed for its outstanding universal values related to the exceptional natural beauty, aesthetic importance and the significant natural habitats for in-situ conservation of biological diversity

National Heritage Sites		x			x		x			• There are 3 National Heritage Sites in the region
										  • Dampier Archipelago (listed 3 July 2007)
										  • The Ningaloo Coast (listed 6 January 2010)
										  • Barrow Island and the Montebello-Barrow Islands Marine Conservation Reserves (nominated for listing)

Commonwealth Marine Reserves		x		x			x	x	x	• There are 6 Commonwealth Marine Reserves within the region
										  • Dampier Commonwealth Marine Reserve;
										  • Montebello Commonwealth Marine Reserve;
										  • Argo-Rowley Terrace Commonwealth Marine Reserve
										  • Mermaid Reef Commonwealth Marine Reserve;
										  • Ningaloo Commonwealth Marine Reserve; and
										  • Gascoyne Commonwealth Marine Reserve.

State Marine Reserves Areas		x		x	x		x	x		• There are 4 State Marine Parks and one proposed State Marine Park in the region:

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										• Ningaloo Marine Park; • Rowley Shoals Marine Park; • Montebello Marine Park; • Barrow Island Marine Park; and • The proposed Dampier Archipelago Marine Park.
Wetlands of International Importance (Ramsar)										• There are no Ramsar Wetlands in the region.

Key Ecological Features	x						x	x	x	• The Ancient Coastline at the 125m depth contour is the only Key Ecological Feature in the operational area.
										• There are 6 Key Ecological Features in the regional area:
										  • Glomar Shoals (approx. 25km south of operational area);
										  • Commonwealth waters adjacent to the Ningaloo Reef;
										  • Mermaid Reef and Commonwealth waters surrounding the Rowley Shoals;
										  • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula;
										  • Continental Slope Demersal Fish Communities; and
										  • Exmouth Plateau.

5 Environmental Hazards and Controls

Environmental risk assessment refers to a process where hazards associated with an activity are assessed for their impact on the environment (physical, biological, and socio-economic) at a defined location and specified period of time. Regulations 13(3) and 13(3A) in the OPGGS (Environment) Regulations require that the environmental impacts and risks must be included in an EP and evaluated.

The environmental risk assessment process applied to the ME Workovers is based on the Santos EHS Management Standard 09 “Hazard Identification, Risk Assessment and Control”, which describes the Santos standard and process with respect to risk assessment for all Santos activities. The methodology described in EHSMS09 is based upon the risk management process described in AS/NZ ISO 31000. Table 3 summarises the key environmental hazards and their associated controls.

Table 3 ME Workovers Major Hazards and Controls

Environmental Hazard	Controls
Planned Activities	
Seabed disturbance	• An ROV survey of the well site undertaken prior to each workover to confirm no feature or area of ecological importance. • Anchor positioning will comply with a Mooring Plan. • One ROV parking bay is used per well. • MODU material and cargo handling procedures will be in place and implemented. • Equipment being shipped to MODU will be checked for potential dropped objects by a third party inspector. • Pre-transfer Job Hazard Analysis (JHA) will be undertaken for all transfer operations. • If practical, dropped objects will be retrieved. • An ROV survey of drill site will be undertaken post workover to check for dropped objects.
Physical Presence	• Vessels maintain a 300m Caution Zone (no wake speed) and 100m No Approach Zone in the vicinity of cetaceans and whale sharks. • Relevant stakeholders identified and consulted in accordance with Division 2.2A, Clause 11A and Division 2.3, Clause 16 OPGGS (Environment) Regulations. • One support vessel on location with the MODU at all times to monitor the 500m PSZ and to intercept and deflect any errant vessels. • MODU fitted with AIS and/or RACON. • MODU location noted in Notice to Mariners (issued by AHS). • AusCoast radio warnings will be issued providing location details of MODU while on location.
Light Emissions	• Not applicable - based on the location, distance from sensitive receptors (particularly turtle nesting areas) and minimum safety requirements, light impacts are not considered to be a credible environmental risk associated with this activity.
Underwater Noise	• Equipment/engines onboard the MODU and support vessels are maintained in accordance with preventative maintenance plan (PMP) or equivalent. • Vessels maintain a 300m Caution Zone (no wake speed) and 100m No Approach Zone in the vicinity of cetaceans and whale sharks. • Helicopters will not fly (excludes landing/take off) lower than 500m within a 500m radius of a

Environmental Hazard	Controls
	cetacean or whale shark.
Introduction of Invasive Marine Species	• Support vessels have a current International Anti-fouling System Certificate. • MODU and support vessels have an AQIS clearance to be in Australian waters (if arriving from international waters prior to the operation). • There are no ballast water exchanges within 12 nm from nearest land. • The MODU and vessel have a Ballast Water Management Plan and Ballast Water Management Log book.
Air Emissions	• Equipment/engines onboard the MODU and support vessels are maintained in accordance with PMP (or equivalent). • Support vessels have in place IAPP Certificates as required under Navigation Act 1912 Part IV Division 12D. • Marine-grade diesel (sulphur content of less than 3.5%) used by MODU and support vessels as primary fuel source.
Intervention and Workover Activity Discharges	• Well killed with weighted fluid to displace well fluids into reservoir. • Well displacement fluids returned to MODU pits for inspection and removal of oil before discharge. • Chemicals used in fluids that will be discharged to the marine environment are assessed via the Santos Offshore Chemical Assessment Process. • Well clean-up fluids will be put over the shakers to remove any solids prior to discharge.
Cooling Water Discharge	• Equipment/engines onboard the MODU will be maintained in accordance with PMP.
Desalination Brine Discharge	• Fresh water maker will be maintained in accordance with PMP.
Domestic Waste Water Discharge	• MODU and vessels have MARPOL compliant sewage treatment plant or sewage comminuting and disinfecting system. • MODU and support vessels sewage treatment plants are maintained in accordance with the relevant PMP. • Sewage and putrescible wastes macerated to < 25mm prior to discharge.
Blige and Deck Drainage	• OWS will contain an oil content meter which automatically prevents discharge of bilge waters if oil content exceeds 15ppm. • If no OWS oily water sent onshore for disposal. • MODU and support vessels have a current International Oil Pollution Prevention Certificate. • Machinery and hydrocarbon/chemical storage areas appropriately bunded. • SOPEP kits available on the MODU in the event of a spill. • All fuel, oils, lubricants and chemical spills to the deck are cleaned up immediately.
Spills	
Minor Spill Events	• Fuel, oils, lubricants and chemicals on the MODU or vessels stored in appropriately bunded areas or containment/storage vesicles. • SOPEP kits available on the MODU in the event of a spill. • Spills to the deck cleaned up immediately. • Deck spill response training undertaken by the crews. • Chemicals are selected in accordance with the Santos Offshore Chemical Selection Process
Diesel Spill Events	• Bunkering undertaken in accordance with the MODU procedure for fuel transfer from supply vessels which includes: ○ Inspection of transfer hose undertaken prior to transfer.

Environmental Hazard	Controls
	○ Watchman equipped with radio visually monitors loading hose during transfer. ○ Tank gauges monitored throughout operation. • Dry-break couplings and hose floats installed on refuelling hose assembly. • In the event of a diesel transfer spill response shall be undertaken in accordance with the OSCP until such time as the termination criteria within the OSCP are met.
Light Crude Spill Event – Release from Subsea Infrastructure	• Mooring Plan will be prepared in general accordance with API RP 25K, specifically incorporating the following: ○ Minimum 10m vertical clearance for mooring lines. ○ No anchor handling operation will occur within 50m horizontal distance of subsea infrastructure. ○ Anchoring will be undertaken in accordance with the Mooring Plan. • The well being worked on and associated pipeline will be shut in and depressurised prior to bringing the MODU to location. • The controls relevant to Seabed Disturbance (dropped objects) are also relevant.
Light Crude Spill Event – Loss of Well Control	• Workovers to be undertaken in accordance with NOPSEMA accepted WOMP, Santos DCMS and completions program. • Critical Well Acceptance Criteria will be developed and implemented to ensure compliance with the DCMS and WOMP and include the following: ○ At all stages in the well life cycle there will be minimum two barrier protection; ○ BOP is stack capable of closing around all tubulars and has rams that fit all sizes of drill pipe in use; ○ BOP to be pressure tested on surface prior to installation, when installed onto wellhead and then fortnightly; ○ Well integrity confirmed throughout operational phase though pressure testing of critical components such as tubing/casing, production packers, downhole safety valve and tubing hanger. • Relevant crew members are trained in well control (e.g. IWCF certification). • A Blowout Contingency Plan (including relief well plan) will be developed prior to commencing the program including procedures to be implemented in the event of a loss of well control to re-gain control of the well. • In the event of a loss of well control, the Blowout Contingency Plan is implemented. • In the event of a loss of well control, oil spill response shall be undertaken in accordance with the OSCP until such time as the termination criteria within the OSCP are met. • In the event of a loss of well control, scientific monitoring studies within the OSMP will be implemented in accordance with the implementation strategy within the OSMP. • The scientific monitoring studies will continue until such time as the termination criteria within the OSMP are met.
Spill Response Strategies – Relief Well	• Chemicals used in fluids that will be discharged to the marine environment are assessed via the Santos Offshore Chemical Assessment Process. • Shaker screens will be used to maximise drill fluids from cuttings. • ROV shall be used to monitor grouting of conductor to observe for returns at the seabed and inform decision processes. • Relief well abandoned and cut below surface.
Spill Response Strategies – Vessel Operations	• Moorings used where available instead of anchoring. • Response strategy NEBA assesses anchoring impacts to sensitive benthic receptors • Anchor plans will be implemented. • Vessels will not park up at night near light sensitive fauna area as identified in the NEBA assessment. • Response effectiveness assessed via daily NEBA to ensure response is providing a net

Environmental Hazard	Controls
	environmental benefit.
Spill Response Strategies – Aerial Operations	• Aircraft will not fly (excludes landing/take off) lower than 300 m within a 300 m radius of a cetacean or whale shark. • Response effectiveness assessed via daily NEBA to ensure response is providing a net environmental benefit.
Spill Response Strategies – Shoreline Access and Cleanup	• NEBA undertaken to determine if shoreline clean-up will have a net environmental benefit. • A shoreline assessment form will be developed and implemented in consultation with the appropriate stakeholders (i.e. DoT) and detail controls to minimise environmental impacts. • The access route (foot, car, vessel, helicopter) with the least environmental impact will be identified within the shoreline assessment form. • A JSA will be undertaken prior to implementing shoreline clean-up response. • Where monitoring suggests there is the potential for a shoreline impact, consultation with the potentially impacted stakeholders will be undertaken. • Response effectiveness assessed via daily NEBA to ensure response is providing a net environmental benefit.
Spill Response Strategies – Dispersant Application	• Dispersant application implemented in accordance with the OSCP to minimise impacts to sensitive receptors. • In the event that dispersant application is required a daily Dispersant Operations Sub-plan will be developed and implemented. • Volumes of dispersant used are recorded for reporting and monitoring purposes. • Chemical dispersant application will be terminated in accordance with the Dispersant Operations Sub-plan. • Response effectiveness assessed via daily NEBA and dispersant operations sub-plan to ensure response is providing a net environmental benefit.
Spill Response Strategies – Wildlife Response	• NEBA undertaken to determine if wildlife response will have a net environmental benefit. • Wildlife response strategy, including if hazing required, developed in consultation with DoT. • Personnel implementing wildlife response strategy are trained in oil wildlife response or supervised by a person trained in oiled wildlife response. • Response effectiveness assessed via daily NEBA to ensure response is providing a net environmental benefit.

Spill Response Strategies – Waste Management	• Containers are available for waste and:
	  ○ Are labelled with the waste type.
	  ○ Have appropriate lids to prevent waste blowing overboard.
	  ○ Are bunded if storing liquid wastes.
	• Wastes are sent onshore for disposal or recycling.
	• Procedures in place for transfers of bulk liquid wastes and include:
	  ○ Inspection of transfer hose undertaken prior to transfer.
	  ○ Watchman equipped with radio visually monitors loading hose during transfer.
	  ○ Tank gauges monitored throughout operation.

6 Management Approach

The ME Well Workovers activity will be managed in compliance with the EP accepted by NOPSEMA in accordance with the OPGGS (Environment) Regulations.

The objective of the EP is to ensure that the potential environmental impacts associated with the activity, during both routine and non-routine operations are identified, are reduced to ALARP and are of an acceptable level. This includes the definition of risk controls that are in place to manage each of the identified risks.

The EP defines environmental performance objectives and environmental performance standards that are used as a basis for managing environmental risks identified through the risk assessment process. Specific measurement criteria have been determined, which are used to demonstrate these performance objectives and standards are achieved.

An implementation strategy is described within the EP. The implementation strategy provides a summary of the Santos systems, practices and procedures in place to manage the environmental risk associated with its activities to ALARP, including:

- Santos EHSMS;
- Contractor Management System;
- Roles and Responsibilities;
- Training and Competencies;
- Chemical Assessment Process;
- Management of Change;
- Monitoring and Reporting;
- Incident Management;
- Auditing and Review;
- Emergency Response; and
- Ongoing Stakeholder Consultation.

7 Stakeholder Consultation

Santos has been actively involved in stakeholder engagement and consultation in the Dampier region since the initial development of the Mutineer Exeter production facility in 2005. Santos is committed to continuing to consult with appropriate stakeholders to ensure concerns associated with the ME Well Workovers activity are incorporated into the management of the activity wherever practicable.

Santos EHSMS07, Consultation and Communication Guideline, has been used to develop the stakeholder consultation strategy. This guideline defines a stakeholder as:

'*Any affected persons, interested persons or organisations that are impacted by, or can impact, a project*.'

In relation to the development of the ME Well Workovers EP, stakeholders were contacted between May 2013 and February 2014 with an invitation to provide comment. At a minimum, flyers were posted or emailed to each stakeholder. The flyer provided detail on the workovers and associated activities and a summary of the key environmental management controls expected to be in place for the project and as detailed in the EP. The purpose of the flyer was to ensure that stakeholders were aware of the known and potential environmental risks and the management controls that will be in place to mitigate them. Additional follow-up information was provided to stakeholders as part of the ongoing consultation process where requested.

Santos was conscious that the relevant, interested and extended stakeholders for the ME Workovers campaign are largely the same as those that had been recently contacted for the Vanuatu-1 Drilling Environment Plan (October 2013) and the Mutineer-Exeter Operations Environment Plan, which are both in relatively close proximity to the workovers activity.

On this basis, those stakeholders identified as 'relevant' stakeholders were sent a targeted cover email with the information flyer attached to ensure their previous concerns were identified, acknowledged and where possible addressed in both the EP and the information sent to them.

Stakeholders included:

- Federal government regulatory/referral authorities;
- State government regulatory/referral authorities;
- Commercial fisheries and representatives; and
- Recreational fishing representative bodies.

Ongoing consultation requirements were identified within the EP and are summarised in Table 4.

Table 4 Ongoing Stakeholder Consultation Requirements

Stakeholder	When	Ongoing Consultation Requirement	Whom
Australian Hydrographic Office – Dept of Defence	When on well location	MODU to email location so AHS can issue Notice to Mariners.	MODU
	When well finished	Advise as to whether wells are left suspended or are plugged and abandoned.	Operations Superintendent
AMSA – Marine Environmental Pollution Response	Prior to activity commencement	Send copy of the ME Well Workovers OSCP to AMSA once accepted by NOPSEMA.	D&C Env Advisor
Department of Mines and Petroleum – Petroleum Environment Branch	As per requirements	As per the DMP's Consultation Guidance Notice for OPGGS (Environment) Regs DMP require the following: • Pre-start notification 1 week prior to activity. • Cessation notification within 1 week of ceasing activity.	D&C Env Advisor

Stakeholder	When	Ongoing Consultation Requirement	Whom
		• Notification of reportable incidents as per Regulation 26AA. • Notification of any other incidents that could potentially impact State waters or land.	
Department of Transport Oil Spill Response	Prior to activity commencement	Send copy of the ME Well Workovers OSCP to DoT once accepted by NOPSEMA.	D&C Env Advisor
WAFIC Recfishwest Mackerel Managed Fishery Nickol Bay Prawn Limited Entry Fishery Onslow Prawn Limited Entry Fishery Pearl Oyster Fishery Pilbara Developing Crab Fishery Pilbara Fish Trawl Interim Managed Fishery Pilbara Line Fishery Pilbara Trap Managed Fishery Pearl Producers Association	Within 2 months of the activity commencing	Send ME Workovers Fact Sheet. If issues raised by stakeholders these will be assessed for relevance. If issue relevant and not covered in EP, the EP will be updated. This updated to the EP will be assessed as per Regulation 17 of the OPGGS (Environment) Regs to determine if the EP is required to be submitted to NOPSEMA for acceptance.	D&C Env Advisor

8 Contact Details

The Santos environmental contact for this activity is;

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Additional information regarding Santos can be obtained from its website at: www.santos.com

9 References

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