



Fullswing-1 Drilling Summary Environment Plan

Exploration Well – 2010 (WA-412-P)

AGR Petroleum Services Controlled Document

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1 Introduction

Japan Energy E&P Australia Pty Ltd (Japan Energy) is the 100% permit holder and operator of the WA-412-P exploration permit located in the North Carnarvon Basin off the northern coast of Western Australia.

Fullswing-1 is the first well to be drilled in the area by Japan Energy. Fullswing-1 will be drilled as a vertical exploration well in the southern part of the permit, targeting the Jurassic age Angel and Legendre sandstone reservoirs. The well will be plugged and abandoned at the completion of drilling.

1.1 Location

The WA-412-P exploration permit is situated in Commonwealth waters approximately 100 km from the northern Western Australian coast between the North Rankin/Perseus Gas Fields to the south west and Mutineer/Exeter Oil Fields to the east. It covers an area of 730km² with water depths across the permit ranging from approximately 100 to 220m. The well location is provided in Table 1 and shown diagrammatically in Figure 1.

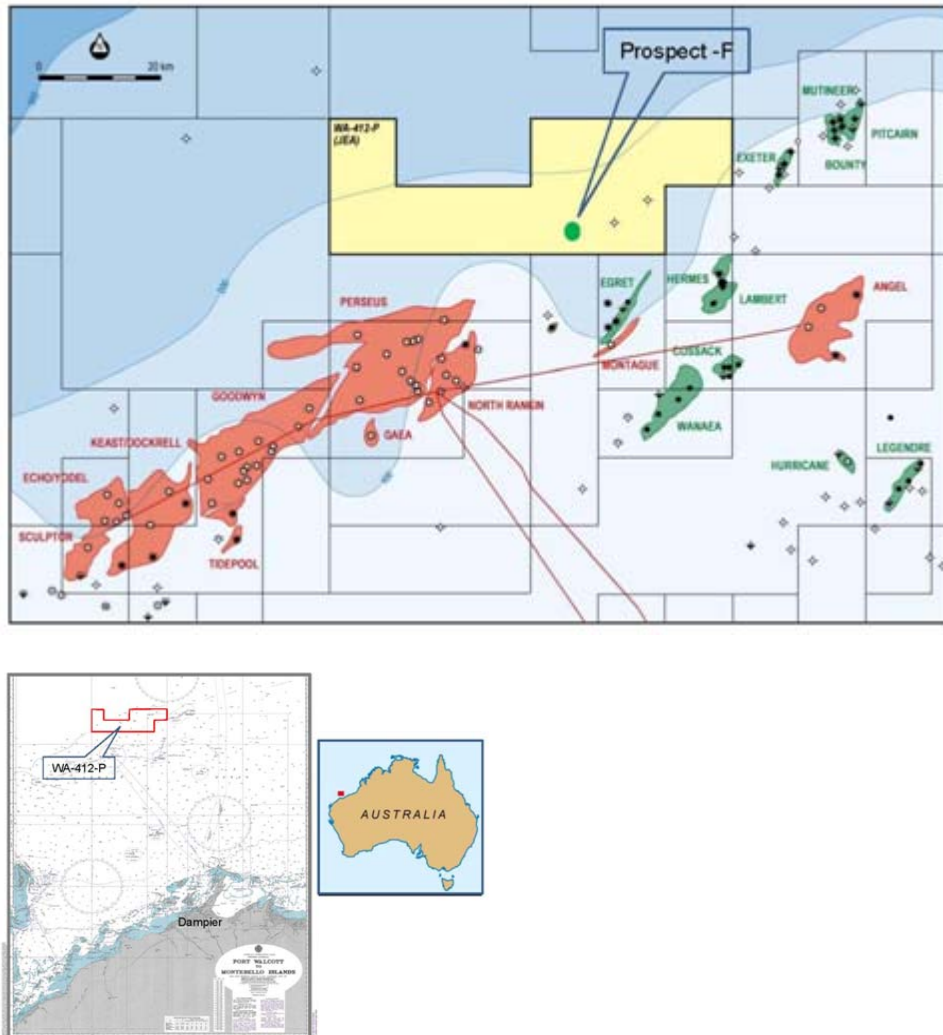


Figure 1 Location of WA-412-P and Fullswing-1



Table 1 Fullswing-1 Well Location (surface coordinates)

MGA Coordinates (GDA94) UTM 80 Zone 55			
Location	Longitude	Latitude	Water Depth
Fullswing-1	116° 18' 12.825"E	19° 23' 15.425" S	134m

2 Drilling Activity

The Fullswing-1 exploration well will be drilled by the Diamond Offshore Drilling Inc operated "Ocean Epoch" semi-submersible MODU to Total Depth (TD) of 4022 m MDRT (Measured Depth from the Rotary Table). The well will be drilled using a combination of seawater and pre-hydrated bentonite/guar gum sweeps and High Performance Water Based Mud (HPWBM). Upon completion of drilling, the well will be logged with a logging suite including Vertical Seismic Profiling (VSP). No testing or well-cleanup activities are planned for this drilling campaign utilising the *Ocean Epoch*.

Fullswing-1 will be plugged and abandoned with no residual infrastructure protruding from the seabed.

Japan Energy is proposing to commence drilling activities in 4Q 2010. The program is expected to take up to 40 days (approx.) pending favourable weather. The MODU will operate 24 hours per day.

3 Receiving Environment

The well is located in 134 m water depth on the outer Northwest Shelf. The outer shelf is characterised as a gradually seaward-sloping surface and the sandy substrates of the region are thought to support low density benthic communities of bryozoans, molluscs and echinoids.

The closest landfall to the proposed drilling location is the Dampier Archipelago approximately 100km to the southeast. This proposed Marine Reserve supports extensive mangrove systems and provides important habitat for dolphins, dugongs and turtles.

Situated 100km to the southwest is the Montebello-Barrow Islands Marine Reserve, a resting ground for migrating humpback whales and important habitat for dolphins. The islands have also been identified as critical turtle nesting sites.

Both resident and migratory fauna, including fish, sharks, turtles and cetaceans, have been observed in the vicinity of the permit area. Up to 12 migratory species, including 2 endangered species (Blue Whale and Leatherback Turtle) and 4 threatened species (Humpback Whale, Green Turtle, Flatback Turtle and Whale Shark) may potentially migrate or temporarily forage in the permit area during certain periods. However, the area is not recognized as an aggregation area for the species and there are no threatened ecological communities listed under the EPBC Act in the vicinity of the drilling site.

Commercial species of fish (cod, snapper, red emperor and bream) also occur in the area.

Significant populations of migratory seabirds utilise the region's shorelines and islands for roosting and breeding and may pass through permit area during the drilling of Fullswing-1. However due to the lack of suitable habitats for these species in the vicinity of the permit area, they are not expected to be present for extended periods of time.



A wide range of human activities occur on the Northwest Shelf including shipping, oil and gas production, commercial and recreational fishing and marine-based tourism.

4 Major Environmental Hazards and Controls

A risk analysis has been undertaken for all aspects of the proposed drilling activities in accordance with the requirements of AS/NZS ISO31000:2009 Risk Management and AS14001. The analysis indicates that, with the proposed management/mitigation measures implemented, no significant environmental impacts are expected and the activities carry low residual environmental risk. Further details of key environmental aspects of the drilling activities are provided in Table 2.

5 Management System Approach

Japan Energy, as the operator of the WA-412-P Permit area, has engaged AGR Petroleum Services as the overall responsible party for the management of the Fullswing-1 drilling operations.

As the manager of drilling operations, AGR has taken a systematic approach in identifying and assessing operational activities (aspects) and their associated environmental risk and establishing objectives, performance standards and criteria to manage and measure environmental performance. AGR's Well Delivery Process is supported by an HSE Management System (HSE MS) which provides a framework for the management of quality, health, safety and environment throughout AGR's operations and applies to all aspects of AGR's activities. The HSE MS applies to all employees, contractors and other third parties.

6 Consultation

Japan Energy has consulted with regulatory agencies and fishing industry groups on the proposed drilling program. Regulatory agencies consulted include the Department of Environment, Water, Heritage and the Arts (formerly Department of Environment and Heritage), Department of Mining and Petroleum (WA), Australian Fisheries Management Authority (AFMA), Department of Fisheries (WA) and Australian Maritime Safety Authority (AMSA).

Japan Energy is committed to ongoing consultation with regulatory agencies and relevant fishing groups as required.

7 Contact Details

Further information associated with the environmental aspects of the Fullswing-1 drilling activities may be obtained from AGR Petroleum Services by writing to:

Phil Harrick
HSE Manager – AGR Petroleum Services
7/342 Flinders Street
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Table 1 Summary of Risk Assessment

No	Environmental Aspect	Description of Potential Impact (Consequence)	Environmental Objective	Management Measures/Actions	Residual Risk
1	Presence of <i>Ocean Epoch</i> MODU and attendant vessels	<ul style="list-style-type: none"> Interference with shipping and fishing vessels increasing the risk of collisions 	<ul style="list-style-type: none"> Minimise interference with commercial fishing vessels Minimise interference with shipping traffic and avoid shipping collisions 	<ul style="list-style-type: none"> Drilling location not within commercial shipping lanes; Low level of fishing activity in area; Petroleum safety zone to be gazetted; <i>Notice to Mariners</i> issued; Lighting and continuous radar/radio monitoring while the <i>Ocean Epoch</i> is on location; Support vessel on stand-by to ward off errant vessels; Consultation with and notification to regulatory agencies and relevant fishing industry groups (as required); Operation under an implemented Emergency Response Plan/OSCP. 	Low
		<ul style="list-style-type: none"> Temporary restricted access to area, causing disruption to fishing activities 	<ul style="list-style-type: none"> Minimise interference with commercial fishing vessels 	<ul style="list-style-type: none"> Consultation with and notification to fishing industry groups; No permanent impacts; Anticipated duration 30 days; Low level of fishing activity in area. 	Low



No	Environmental Aspect	Description of Potential Impact (Consequence)	Environmental Objective	Management Measures/Actions	Residual Risk
		<ul style="list-style-type: none"> Possible collision with marine mammals causing injury or death Disturbance of marine mammals/fauna (altered behaviour) 	<ul style="list-style-type: none"> Minimise disruption to marine life 	<ul style="list-style-type: none"> Drilling activity is of short duration and outside of peak cetacean migration period; Environmental induction for crews; Whale & dolphin sighting reports to be completed and submitted to Department of Environment, Water, Heritage and Art (DEWHA); All mobile vessels will adhere to the 2005 Australian National Guidelines for Whale & Dolphin Watching (DEWHA, 2005); <i>Ocean Patriot</i> is stationary in open ocean, turtles, whales and dolphins will have no problem avoiding it. 	Low
2	Presence of infrastructure	<ul style="list-style-type: none"> Future impacts to fisheries through dropped objects & subsea infrastructure 	<ul style="list-style-type: none"> Minimise interference with commercial fishing vessels 	<ul style="list-style-type: none"> Well to be plugged and abandoned with no residual infrastructure protruding from the seabed; Dropped objects analysis undertaken and control measures implemented; ROV survey at completion of drilling activities. 	Low
3	Seabed disturbance	<ul style="list-style-type: none"> Disturbance to seafloor resulting in loss of seabed fauna 	<ul style="list-style-type: none"> Minimise disturbance to the seabed and benthic habitats 	<ul style="list-style-type: none"> Seabed area around Fullswing-1 is sandy (readily recolonised) and does not have high environmental sensitivity; Anchoring activities are undertaken in accordance with approved procedures which minimise benthic impacts. 	Low
4	Ballast water and biofouling	<ul style="list-style-type: none"> Potential release of oil contaminated ballast water to sea 		<ul style="list-style-type: none"> Segregated ballast tanks. 	Low



No	Environmental Aspect	Description of Potential Impact (Consequence)	Environmental Objective	Management Measures/Actions	Residual Risk
		<ul style="list-style-type: none"> Potential discharge of exotic organisms from ballast water causing ecological disruption 	<ul style="list-style-type: none"> Minimise disruption to marine life 	<ul style="list-style-type: none"> Vessel to comply with the AQIS Australian Ballast Water Management Requirements; Mobilising from adjacent Northwest Shelf permit area. 	Low
		<ul style="list-style-type: none"> Introduce exotic marine - hull and vessel niches fouling 		<ul style="list-style-type: none"> Removal of exotic marine species prior to entering Australian waters. 	Low
5	Discharge of drilling fluid/cuttings	<ul style="list-style-type: none"> Fluid may contain chemicals that are harmful to the environment 	<ul style="list-style-type: none"> Minimise impact of drilling fluids/cuttings on marine environment 	<ul style="list-style-type: none"> Well will be drilled with Water Based Mud (WBM). No synthetic or oil based mud will be used; Drilling mud discharges to be minimised through closed drilling system; Mud losses on cuttings minimised through the use of shale shakers in the closed mud system; During the drilling of the lower section, drill cuttings will be discharged overboard at sea-level, dispersing the cuttings and associated mud over a wider area; Drilling fluid and additives used are monitored and recorded; Any heavy metals present are not bioavailable. 	Low
		<ul style="list-style-type: none"> Water turbidity affecting sunlight to phytoplankton 			
		<ul style="list-style-type: none"> Smothering of benthic communities on seabed 			
		<ul style="list-style-type: none"> Temporary alteration to sediment characteristics 			
6	Discharge of cementing fluid	<ul style="list-style-type: none"> Fluid may contain chemicals that are harmful to the environment 	<ul style="list-style-type: none"> Minimise impact of cementing fluids on marine environment 	<ul style="list-style-type: none"> Low toxicity cement additives; Liquid cement discharges minimised and only small volume discharged (70 bbl estimated maximum); Surplus dry cement returned onshore for reuse; Cementing additives are monitored/recorded. 	Low
		<ul style="list-style-type: none"> Smothering of benthic communities on seabed 			



No	Environmental Aspect	Description of Potential Impact (Consequence)	Environmental Objective	Management Measures/Actions	Residual Risk
		<ul style="list-style-type: none"> Temporary alteration to sediment characteristics 		<ul style="list-style-type: none"> Seabed area disturbed already impacted by cuttings deposition. 	
7	Discharge of cooling water	<ul style="list-style-type: none"> Thermal impacts to marine flora/fauna near the discharge point 	<ul style="list-style-type: none"> Minimise impact of routine discharge on marine environment 	<ul style="list-style-type: none"> Warm cooling water is expected to disperse near the sea surface very rapidly within a few tens of metres from the discharge point. 	Low
		<ul style="list-style-type: none"> Seal oil contamination of cooling waters 		<ul style="list-style-type: none"> Seals on cooling water pumps are routinely maintained; Cooling Water Pump Seals monitored. 	Low



No	Environmental Aspect	Description of Potential Impact (Consequence)	Environmental Objective	Management Measures/Actions	Residual Risk
8	Discharge of deck drainage	<ul style="list-style-type: none"> • Toxicity impacts to marine flora & fauna • Reduction of water quality 	<ul style="list-style-type: none"> • Minimise impact of routine discharge on marine environment 	<ul style="list-style-type: none"> • High standards of housekeeping maintained with routine inspections of oily water treatment systems and chemical/oil storage areas; • Chemicals, oils and wastes stored in designated storage areas with appropriate spill cleanup materials (e.g. absorbents, containers) in accessible locations; • In the event of a chemical or oil spill, absorbents are used immediately to remove spill material, prior to any washing activities; • Absorbent material, used for cleanup, is containerised and sent to shore as hazardous waste; • Bunding (temporary or permanent) is provided for those areas/activities where there is an increased risk of oil/chemical spill (e.g. fuel transfer); • Material Safety Data Sheets are available for all chemicals used (includes spill response requirements); • Chemicals used are assessed for environmental impact prior to purchase (e.g. fully biodegradable detergent); • Oily water discharged via an IMO approved Oil-in-water (OIW) meter as per MARPOL Annex I at <15ppm. 	Low



No	Environmental Aspect	Description of Potential Impact (Consequence)	Environmental Objective	Management Measures/Actions	Residual Risk
9	Discharge of equipment/machine space drainage	<ul style="list-style-type: none"> Toxicity impacts to marine flora & fauna Reduction of water quality 	<ul style="list-style-type: none"> Minimise impact of routine discharge on marine environment 	<ul style="list-style-type: none"> Equipment and machine spaces on the Ocean Epoch are fully contained and have dedicated drains leading to the bilge water systems for oily waste products; Oily residues collected in this system are containerised in transit tanks and returned to shore for disposal; OIW discharge is monitored and meets MARPOL Annex 1 discharge criteria (as per deck drainage). 	Low
10	Disposal of domestic waste (sewage, greywater and food scraps)	<ul style="list-style-type: none"> Temporary nutrient enrichment of surrounding water Visual amenity impacts 	<ul style="list-style-type: none"> Minimise impact of routine discharge on marine environment 	<ul style="list-style-type: none"> Sewage will be treated in a sewage treatment unit prior to discharge to the marine environment; Food scraps are macerated to a particulate size of less than 25mm before being discharged to the marine environment below the water line; Cleaning agents used in the accommodation block are fully biodegradable; Inspection of treatment system on regular basis to confirm operability and performance. 	Low
11	Emission of combustion products	<ul style="list-style-type: none"> Reduction in air quality Aesthetic impacts of smoke 	<ul style="list-style-type: none"> Minimise impacts of atmospheric emissions 	<ul style="list-style-type: none"> Regular equipment condition monitoring and maintenance undertaken to ensure maximum efficiencies; Rigorously monitored fuel usage; All emissions from marine utilities are in accordance with the guidelines in MARPOL Annex VI Prevention of Air Pollution from Ships. 	Low
		<ul style="list-style-type: none"> Contribution of greenhouse gases to atmosphere contributing to global climate change 			Low
12	Emission of ozone depleting substances	<ul style="list-style-type: none"> Releases of Freon result in reduction in ozone and protection from UV radiation 	<ul style="list-style-type: none"> Minimise impacts of atmospheric emissions 	<ul style="list-style-type: none"> Regular maintenance of the system to prevent leakages; Systems serviced by accredited personnel; Rig refrigerant use/reclamation log is maintained. 	Low



No	Environmental Aspect	Description of Potential Impact (Consequence)	Environmental Objective	Management Measures/Actions	Residual Risk
13	Noise	<ul style="list-style-type: none"> Disturbance to marine mammals, seabirds and other marine fauna 	<ul style="list-style-type: none"> Minimise disruption to marine life 	<ul style="list-style-type: none"> All mobile vessels will adhere to 2005 Australian National Guidelines for Whale & Dolphin Watching; Adherence to 'soft start' procedure during VSP survey; Cessation of VSP survey if marine mammals are observed; Cetacean sighting data will be collected during the drilling campaign and will be forwarded to DEWHA & DMP. 	Low
14	Disposal of hazardous and general wastes	<ul style="list-style-type: none"> Toxicity and physical impacts to marine flora and fauna Visual pollution to the marine environment 	<ul style="list-style-type: none"> Minimise potential impacts of solid and hazardous wastes on the environment 	<ul style="list-style-type: none"> Clear waste identification, segregation, containment (in skips or sealed drums) and labelling; Waste storage areas are routinely inspected; Training and reinforcement to all drilling <i>Ocean Epoch</i> (& other) personnel of waste management requirements; Documented disposal records. 	Low
15	Diesel spillage - fuel transfer	<ul style="list-style-type: none"> Impact on water quality and marine life 	<ul style="list-style-type: none"> Minimise occurrence and effects of spills 	<ul style="list-style-type: none"> Fuel transfers in accordance with Bunkering Procedures with equipment routinely maintained and inspected; Monitoring fuel level in tank and flow rates; Hose couplings used are dry-break; Suitable absorbent material is held on the attendant vessels and MODU to cleanup small diesel spills. 	Low



No	Environmental Aspect	Description of Potential Impact (Consequence)	Environmental Objective	Management Measures/Actions	Residual Risk
17	Diesel spillage - rupture of support vessel fuel tank (collision)	<ul style="list-style-type: none"> Impacts on water quality and marine life Shoreline Pollution (very low probability) Disruption to fishing activities 	<ul style="list-style-type: none"> Minimise occurrence and effects of spills 	<ul style="list-style-type: none"> A 500m safety exclusion zone declared around the <i>Ocean Epoch</i> MODU; Navigational aids on the <i>Ocean Epoch</i> and supply vessels including light and radars to avoid collisions; Supply vessels to observe the OSV code; Drilling location not within commercial shipping lane. 	Low
18	Crude spillage - well blowout	<ul style="list-style-type: none"> Oiling of seabirds & fish tainting Shoreline pollution Disruption to fishing activities 	<ul style="list-style-type: none"> Minimise occurrence and effects of spills 	<ul style="list-style-type: none"> Well location surveyed and assessed for potential shallow occurrences of hydrocarbon prior to drilling; The composition of the drilling fluids is constantly monitored to ensure sufficient density to control subsurface pressures; Blow-out Preventers (BOP) and related well control equipment are installed, operated, maintained and tested in accordance with manufacturer's recommendations; The well is designed and constructed in accordance with AGR standards and Well Delivery Process. 	Low
19	Chemicals spills	<ul style="list-style-type: none"> Impact on water quality and marine life 	<ul style="list-style-type: none"> Minimise occurrence and effects of spills 	<ul style="list-style-type: none"> Chemicals are handled according to the Hazardous Substances Procedure; Chemical storage and handling areas are bunded and routinely inspected for leaks and spills; Training is provided for personnel handling chemicals; MSDSs are to be made available for all chemicals; Training in spill kits provided to personnel; Spill kits to be provided in appropriate locations. 	Low