



Coniston-5 & Coniston-6 Appraisal Well Environment Plan: Public Summary September 2009

This summary of the Coniston-5 and Coniston-6 EP has been submitted to comply with Regulation 11(7)(8) of the Petroleum (Submerged Lands) (Management of Environment) [P(SL)(MoE)] Regulations 1999.

Introduction

Apache Energy Limited (Apache) proposes to drill two vertical appraisal wells, Coniston-5 and Coniston-6, in Commonwealth waters off the Western Australian coast in permit area WA-35-L. Drilling is proposed to commence around 30 September 2009 and 12 October 2009 respectively (weather conditions permitting) using the *Stena Clyde* semi-submersible drill rig. Coniston-5 is located 49 km to the north of the North West Cape and 39 km to the north of Muiron Islands (**Figure 1**). Coniston-6 is located 52 km to the north of the North West Cape and 42 km to the north of Muiron Islands (**Figure 2**).

Apache's generic Environment Plan (EP) for its drilling program on the North West Shelf (NWS) in State and Commonwealth waters will be used to manage the wells (EA-00-RI-164). A bridging document to this EP for Coniston-5 and Coniston-6 was approved by the Department of Mines and Petroleum (DMP), in accordance with the Petroleum (Submerged Lands) (Management of Environment) (PSLMoE) Regulations 1999.

Project Description

Coniston-5

The proposed Coniston-5 drill site is located at 21° 21' 12.155"S 114° 03' 26.201"E (GDA 94, Zone 50) in a water depth of 394 m.

The *Stena Clyde* will be moved into position for the Coniston-5 well by work boats and then kept on location with primary and secondary anchors.

The drilling procedure for the Coniston-5 well will be drill a 914 mm hole to 467m with seawater and prehydrated gel (SW/PHG). A 762 mm conductor and Low Pressure Well Head Housing (LPWHH) will then be run and cemented in place. Following this a 406 mm hole will be drilled to 1078 m measured depth below the rotary table (MDRT). A 340 mm x 473 mm casing will be run and cemented and a Latch High Pressure Well Head Housing (HPWHH) installed. The Blow-out Preventers (BOPs) and Lower Marine Riser Package (LMRP) and marine riser will then be landed, latched and tested. Following this, a full BOP test will be performed before drilling a 216 mm hole to 1397 m MDRT using WBM. The well will then be evaluated, logged and plugged and abandoned (pending results of the evaluation). Vertical seismic profiling (VSP) will be undertaken as part of this drilling programme. A production test will not be carried out for this well.

On the completion of the drilling programme the rig will be towed away.

Coniston-6

The proposed Coniston-6 drill site is located at 21° 19' 52.60"S 114° 02' 27.10"E (GDA 94, Zone 50) in a water depth of 438 m.

The drilling procedure for the Coniston-6 well will be drill a 914 mm hole to 511m with SW/PHG. A 762 mm conductor and LPWHH will then be run and cemented in place. Following this a 406 mm hole will be drilled to 1062 m MDRT. A 340 mm x 473 mm casing will be run and cemented and a HPWHH installed. The BOPs and LMRP and marine riser will then be run, landed, latched and pressure tested. Following this, a full BOP test will be performed before drilling a 216 mm hole to 1397 m MDRT using WBM. The well will then be evaluated, logged and plugged and abandoned (pending results of the evaluation). VSP will be undertaken as part of this drilling programme. A production test will not be carried out for this well.

On the completion of the drilling programme the rig will be towed away.

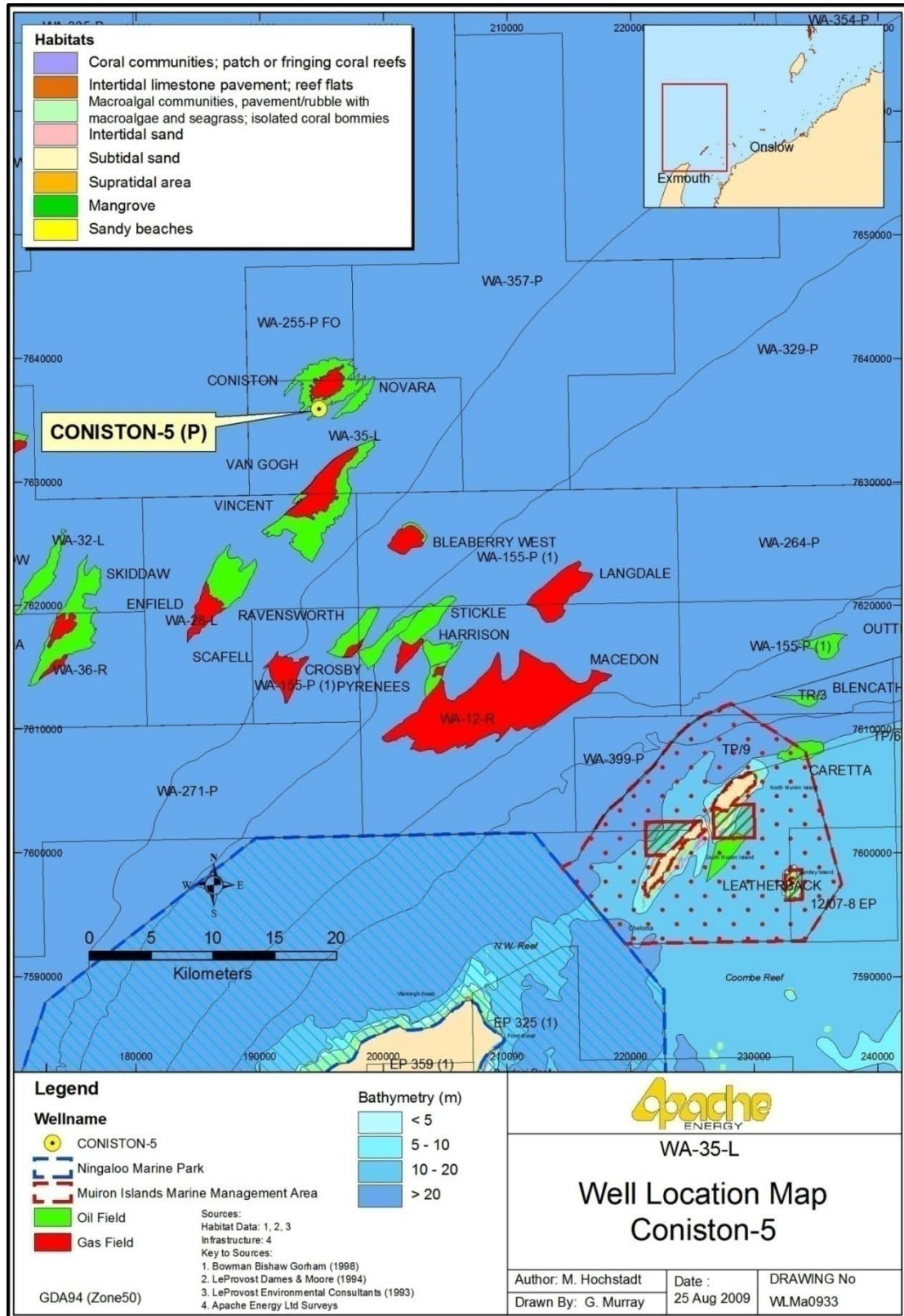


Figure 1 Location of the Coniston-5 drill site

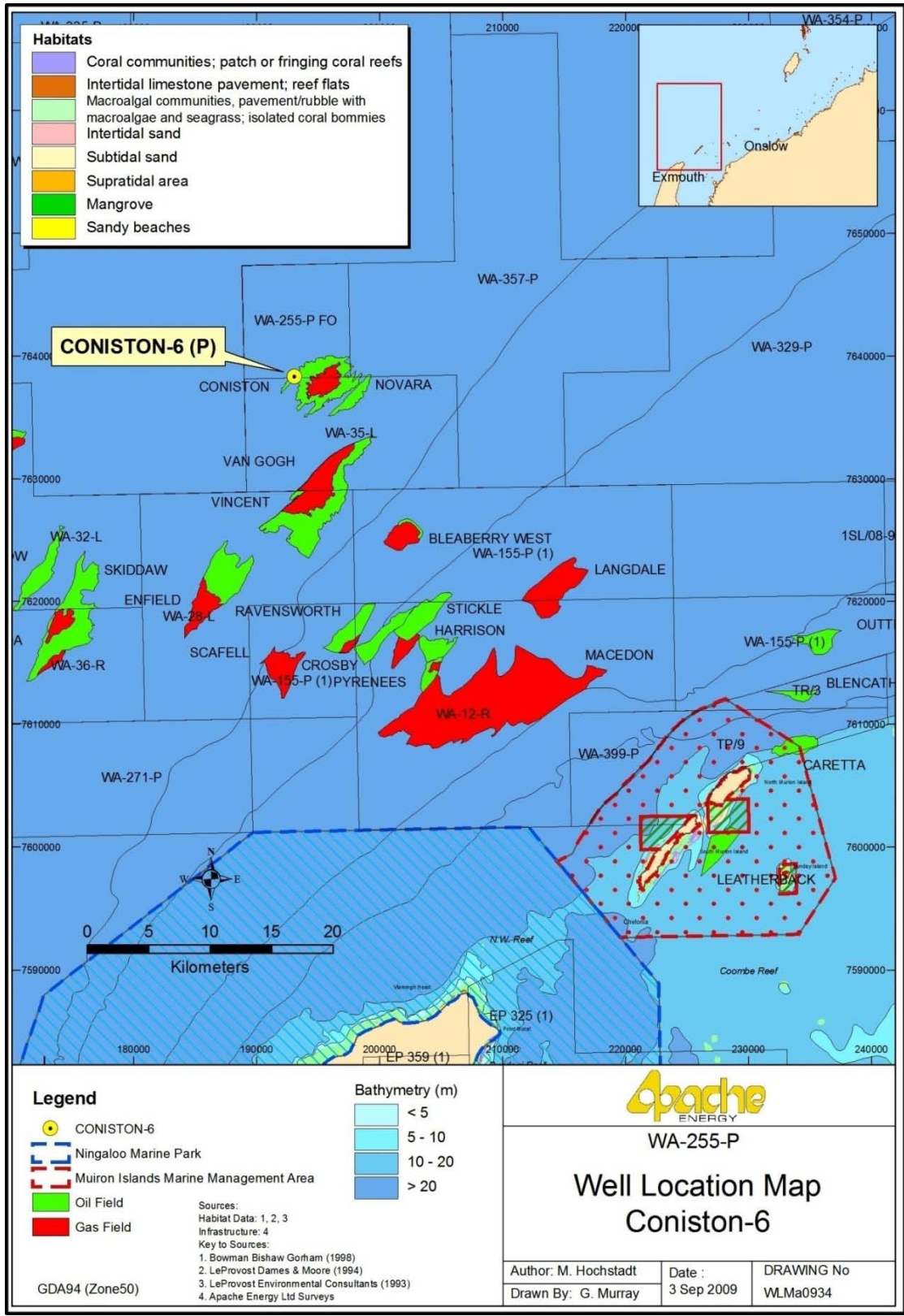


Figure 2 Location of the Coniston-6 drill site

Receiving Environment

Physical Environment

The NWS lies in the arid tropics region of Australia, which experiences high summer temperatures and periodic cyclones (with associated rainfall). Rainfall is generally low, with evaporation exceeding rainfall. Mean ocean temperatures range from a minimum of 11°C in winter to a maximum of 37°C in summer. Shelf waters are usually thermally stratified at a depth of about 20 m.

Wind patterns are monsoonal with a marked seasonal pattern. From October to March, the prevailing non-storm winds are from the south-west, west and north-west at an average speed of less than 10 knots. From June to August, winds are generally lighter and more variable in direction than in spring and summer. Non-storm winds prevail from north-east through to south-east at average speeds of 5-6 knots. Transitional wind periods, during which either pattern may predominate, can be experienced in April, May and September each year.

The seabed across the Coniston-5 and Coniston-6 sites is predominately composed of fine sandy silt and there are no raised seabed features.

Biological Environment

Diverse assemblages of benthic fauna are likely to exist at the site, especially if unconsolidated sediments are present. Mobile burrowing species that may be present include crustaceans (crabs and shrimps), worms, sea stars, sea urchins and other small animals. Spatial and seasonal distribution of such species depends on factors such as substrate composition, season, water depth and temperature.

The demersal habitat of the NWS hosts a diverse assemblage of fish, many of which are commercially exploited by trawl and trap fisheries, for example the genera *Lethrinus* (emperor) and *Lutjanus* (snapper). Pelagic fish in this area include tuna, mackerel, herring, pilchard and sardine. The inshore habitats in this region are not considered to be significant nursery grounds for commercially important deeper-water fish species.

Whale sharks (*Rhincodon typus*) are oceanic and cosmopolitan in their distribution; however, they aggregate in and near the waters of the Ningaloo Marine Park during autumn, around the Exmouth region. They are occasionally observed from Apache's offshore oil and gas facilities on the NWS such as the Stag platform.

Four species of marine turtle nest on sandy shore sites of the Dampier Archipelago, Montebello Islands, Lowendal Islands, Barrow Island, and other coastal islands in the Exmouth region. These are the green turtle (*Chelonia mydas*), flatback turtle (*Natator depressus*), hawksbill turtle (*Eretmochelys imbricata*), and the loggerhead turtle (*Caretta caretta*). All four species are on the National List of Threatened Species. The leatherback turtle (*Dermochelys coriacea*) may also visit the open waters of the shelf. The loggerhead, flatback and leatherback turtles are known to feed on mid-water plankton and benthic animals, and can forage in continental shelf waters, so may occur around the Coniston-5 and Coniston-6 locations. The timing of drilling does coincide with the sea turtle nesting period on the NWS. However, due to the offshore location of the proposed wells and distance from any sensitive breeding/nesting sites it is not expected that the drilling of the Coniston-5 and Coniston-6 wells will impact upon turtles.

The nationally threatened dugong (*Dugong dugong*) occurs across the tropical coastal waters of Australia from Shark Bay to Queensland. They are herbivorous and

are generally associated with seagrass beds, upon which they feed. Dugongs are commonly found in shallow sheltered areas (less than 5 m deep), often near islands or large bays. They are not likely to be present around the proposed Coniston-5 and Coniston-6 locations.

Dolphins are relatively common in the region. Species known to occur in the region are the bottlenose dolphin (*Tursiops truncatus*), common dolphin (*Delphinus delphis*), Indo-pacific humpback dolphins (*Sousa chinensis*) and the striped dolphin (*Stenella coeruleoalba*). A number of whale species, including the short-finned pilot whale (*Globicephala macrorhynchus*), false killer whale (*Pseudorca crassidens*), tropical byrdes whale (*Balaenoptera edeni*), southern minke whale (*Balaenoptera acutorostrata*) and humpback whale (*Megaptera novaeangliae*), also occur in the region, the most commonly sighted of these being the humpback whale. This species migrates between the Antarctic waters and the Kimberly region of Western Australia. The peak of their northerly migration between the Exmouth Gulf and the Dampier Archipelago occurs around late July to early August, while the southerly return migration peaks around late August – early September. The proposed Coniston-5 and Coniston-6 wells are located within the migration corridor of the humpback whale in the Exmouth to Dampier Archipelago region and the timing of drilling is within the southern migration period.

Eighteen species of seabird have been recorded over the NWS waters. These include petrels, shearwaters, tropicbirds, frigatebirds, boobies and terns, and silver gulls. Of these, eight species occur year round and the remaining 10 are seasonal visitors.

Socio-Economic Environment

The population centres adjacent to the region in which the drilling program is located are the Port of Dampier and Port Hedland and the smaller coastal and fishing towns of Onslow and Point Samson. Dampier, Karratha and Port Hedland are the main service and population centres for the region. Local people seeking aquatic recreation such as boating, diving and fishing use the coast and islands of the Pilbara. The open waters of the Commonwealth permit areas do not support significant recreational or tourism activity.

Commercial fisheries are active along the Pilbara coast; however fishing effort in the open Commonwealth waters is low, with operators favouring the inshore areas.

No marine or terrestrial conservation areas are located in the vicinity of the drill site.

Table 1 summarises the biological and socio-economic features of the NWS.

Table 1. NWS biological and human activity seasons

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Dugong breeding	breeding								breeding				
Hawksbill turtle nesting													
Flatback turtle nesting													
Green turtle nesting													
Loggerhead turtle nesting													
Coral spawning													

Whale migration						north		south		
Whalesharks										
Algae	growing				Shedding fronds			growing		
Seabird nesting										
Prawn trawling										
Tourism										
Coniston-5 + 6										

Key

	Peak activity, presence reliable and predictable
	Low level of abundance/activity/presence
	Activity not occurring within the area

Major Environmental Hazards and Controls

The potential environmental impacts resulting from offshore drilling on the NWS are outlined in detail in the Generic Drilling Program EP. **Table 2** summarises the potential impacts of the Coniston-5 and Coniston-6 drilling program.

Table 2. Summary of potential environmental impacts from offshore drilling on the NWS

Potential hazard (risk)	Potential environmental effect (consequence)	Risk ranking
Drill rig and vessel anchoring	Localised disturbance to seabed, such as shallow furrows, dependent on seabed type. Effects are temporary.	Negligible – semi-submersible rig with anchoring to seabed.
Artificial lights from drill rig (must be kept on 24 hrs due to safety regulations)	Potential disorientation of fauna by lights at night, especially turtle hatchlings.	Negligible – wave direction and magnetic cues are primary influences on turtle hatchlings once they have left the beach. Coniston-5 and Coniston-6 are distant from nesting beaches.
Impacts to marine species from noise generated by the drill rig and support vessels	Potential short-term physiological effects or disruption to behaviour patterns of cetaceans, birds, turtles, fish and other marine life.	Negligible – observations have shown whales resting and swimming in close proximity to operating rigs.
Drill cuttings and fluid discharges	Drilling activities and disposal of drill cuttings and fluids will produce suspended sediments in the water column increasing turbidity, will bury and smother infauna and epifauna and may lead to toxicity and bioaccumulation to marine organisms.	Acceptable – WBMs used. Studies on NWS reveal few long-term impacts on benthic fauna from WBMs.
Sewage, putrescible and solid domestic wastes	Potential localised reduction in water quality - nutrient enrichment. Modification of feeding habits of local fauna.	Negligible – sewage treatment used on rig.

Potential hazard (risk)	Potential environmental effect (consequence)	Risk ranking
Waste oil, chemicals and oil-contaminated drainage water	Potential localised reduction in water quality.	Negligible – decks kept clean during operations, oily-water separator collects any spilled material.
Cooling water and atmospheric emissions	Potential localised reduction in water quality. Emissions of greenhouse gases. Potential localised reduction in air quality.	Negligible – discharged above water line to allow cooling and oxygenation.
Introduction of foreign marine organisms from drill rig and support vessels	Competition with local marine life and absence of natural predators can alter ecological balance of flora and fauna communities, favouring the introduced species and resulting in loss of flora and fauna diversity and abundance.	Negligible
Impacts to humpback whales from vertical seismic profiling (VSP) noise	VSP is a more benign activity than conventional seismic surveys. Potential short-lived impacts include disruption to navigation and communication, with some research indicating no disruption from normal activities when seismic activity is occurring several kilometres away.	DoIR guidelines on minimising acoustic disturbance to Marine Fauna will be followed during VSP
Oil or diesel spills	Severe damage of marine habitats (e.g., coral reefs, mangroves, beaches) and death or injury to marine life (e.g. birds, mammals).	Acceptable – oil spill modelling indicates spills would be unlikely to reach land.

Environmental Management

Extensive environmental management guidelines are prepared for each Apache-drilled well. Apache management documents used to guide the implementation of well-specific environmental management procedures are listed below:

- Environmental Management Policy (April 2009).
- Contaminated Waste Management Procedure (VI-SA-ON-EN-000).
- Incident Reporting Procedure (AE-91-IF-002).
- Lighting Management Plan (EA-60-RI-153).
- OSCP Volume 1 – Operations (NWS) (AE-OO-EF-008).
- OSCP Volume 2 – Resource Atlas (NWS) (AE-OO-EF-008/2).
- Quarantine Procedure (AE-91-IQ-189).
- Refuelling Management Plan (DR-91-IG-001).
- Refuelling Operational Procedure Guide.
- Vermin Management Plan (EA-60-RI-131).
- Waste Management Plan (EA-60-RI-167).

Consultation

In preparing the Generic NWS Drilling Program EP, Apache consulted with numerous stakeholder representatives, including:

- (former) DoIR
- Department of Environment (DoE)
- CALM (Marine branch)
- Fisheries WA
- Marine and Coastal Community Network
- Environment Protection Agency (EPA)
- Marine Parks Reserve Authority (MPRA)
- CALM (Environmental protection)
- WA Fishing industry Council

Further Details

For further information about the Coniston-5 and Coniston-6 drilling program, please contact:

Mark Hochstadt
Environmental Scientist
Apache Energy Ltd
PO Box 477, West Perth, WA 6872
Phone: 08-9422 7205
Email: mark.hochstadt@aus.apachecorp.com