Halyard Start-up and Operations Environment Plan Summary

May 2011

This summary has been submitted to comply with Regulation 11(7)(8) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) (OPGGS(E)) Regulations 2009.

Introduction

In preparation for the start-up and operation of the Halyard Field, Apache submitted to the Department of Mines and Petroleum (DMP) a Bridging Document to the Varanus Island Hub Operations Environment Plan (VI Hub Operations EP; EA-60-RI-186) for approval under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009. The Bridging Document describes the equipment, activities, environmental risk and environmental management of the Halyard Field via the John Brookes platform and Varanus Island, in-so-far these have not been covered in Apache's existing VI Hub Operations EP and General Petroleum Support Activities Environment Plan (GPSA EP; EA-00-RI-158). The Halyard Field and the John Brookes Platform are located in in Offshore Commonwealth Waters, and operate under Production Licences WA-41-L and WA-29-L respectively.

The Halyard-1 well is approximately 28 km southwest of the John Brookes Platform and 16 km northwest of the East Spar Manifold. Barrow Island is located about 50 km to the south-east of the Halyard-1 well, with Lowendal Islands and Montebello Island groups about 65 km to the east (see **Figure 1**).

The location details of the subsea infrastructure is provided in **Table 1**.

Table 1: Location details of the Halyard Development infrastructure.

Infrastructure	Location (GDA 94, Zone 50)		Water depth (m) approx.
Halyard-1 Well	7 720 611 N	283 156 E	105 m LAT*
Halyard EHU – Start (John Brookes Platform)	7 737 890 N	303 892 E	46 m LAT*
Halyard EHU – End (Halyard 1 Well)	7 720 611 N	283 156 E	105 m LAT*
Halyard Flowline – Start (Halyard 1 Well)	7 720 611 N	283 156 E	105 m LAT*
Halyard Flowline – End (East Spar PLEM (New))	7 707 278 N	290 092 E	92 m LAT*
East Spar Tie-in Spool - Start (East Spar PLEM (New))	7 707 278 N	290 092 E	92 m LAT*
East Spar Tie-in Spool - End (East Spar Manifold (Existing))	7 707 291 N	290 101 E	92 m LAT*

*Lowest Astronomical Tide

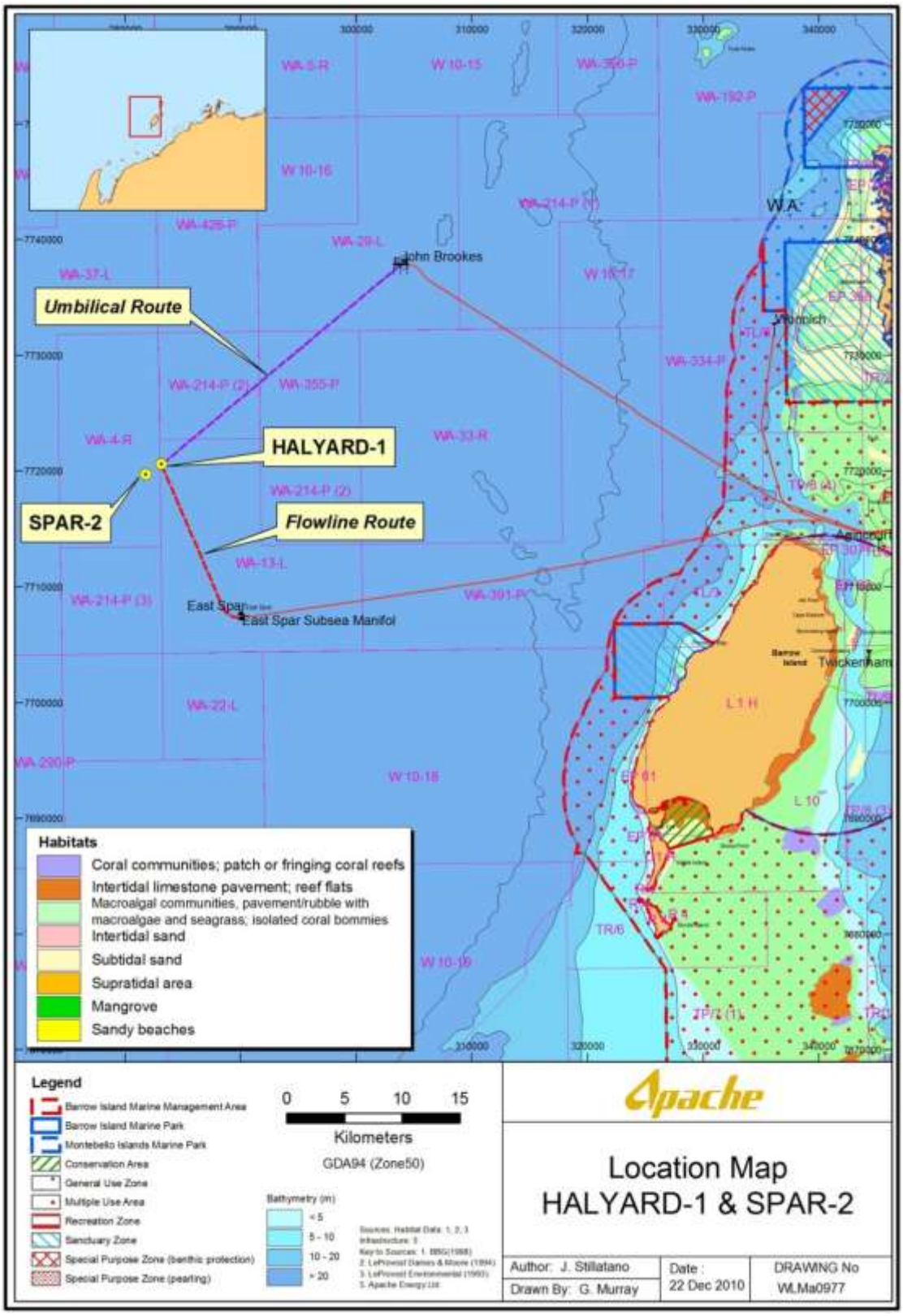

Figure 1: Location map of Halyard development

Project Description

The John Brookes/Varanus Island pre-commissioning activities (prior to start-up) work includes the following activities:

- Start-up of fuel gas skid and microturbines on John Brookes;
- Methanol/MEG and corrosion inhibitor (NALCO® EC1477A) flushing and filling of the umbilical (flushing from JB platform to VI slugcatcher); and
- Cause and Effect testing, including function testing of fuel gas skid equipment and microturbines.

The John Brookes/Varanus Island start-up / commissioning and subsequent operations for the Halyard field include the following activities:

- Halyard-1 well start-up;
- Pipeline dewatering through VI produced water facilities; and
- Ramp-up to full production and steady state.

The commissioning/start-up activities on John Brookes will be carried out during daylight hours only. It is expected that a maximum of 14 people will be working on the John Brookes platform for approximately 4 days during May 2011.

The Halyard Field start-up and operations will not lead to the introduction of any new activities on the existing VI operations.

Existing Environment

A description of the existing terrestrial, marine and social environment relevant to John Brookes, East Spar and VI is provided in the "*VI Hub Operations EP*". Elements of the existing environment around the Halyard field that have not been covered in the VI Hub Operations EP are summarised below.

A seabed survey undertaken in the Halyard/Spar development area identified flat or gently sloping substrata covered with sands and a component of finer, silty sediments. The sands showed medium to dense bioturbation with low epibenthic biota coverage and limited to occasional invertebrate presence.

Occasional exposed limestone pavements covered with thin sand veneers are present along the umbilical route of the John Brookes platform but as with the sandy habitats, this limestone pavement habitat is not unique and has no particular regional conservation significance.

Biological grab sampling in the soft sediments around the East Spar location has confirmed that it is typical of the habitat extensively represented across the NWS. In the vicinity of hard substrate and wellheads (John Brookes, East Spar, Halyard and Spar wells) in particular, large marine fauna may be encountered. Fish species associated with these environments (as observed during the seabed survey) included giant trevally (Caranx ignobilis), yellow tail king fish (Seriola lalandi), potato cod (Epinephelus tukula) and shark species comprising white tip reef shark (Triaenodon obesus) and silvertip shark (Carcharhinus olbimarginatus).

Table 2 provides an overview of the timing of the major ecological activities on the North West Shelf in relation to the Halyard Field start-up activities. Although within the breeding season for migratory birds, the timing of the Halyard Field Start-up activities is mainly offshore in deep water or within existing production facilities on Varanus Island and therefore does not affect breeding activities within the Montebello/Barrow Islands Marine Conservation Reserves.

Although the field is located within the migration route for humpback whales (Megaptera novaeangliae) in the Exmouth to Port Hedland region, the timing of the start-up activities does not overlap with the peak humpback whale migration period. In addition, the proposed start-up activities do not coincide with the peak turtle hatching and emergence period.

Note that activities on the John Brookes Platform are of a short duration and restricted to daylight hours, with no subsea activities being planned as part of this scope.

Table 2: Ecological activities on North West Shelf

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Ecological Activity												
Humpback whale migration												
Dugong breeding on North West Shelf												
Turtle nesting on North West Shelf												
Turtle hatchling emergence on North West Shelf												
Migratory Birds												
Mass coral spawning (few nights within month)												
Halyard Field Start-up and Operations												
Halyard Field Start-up Activities												

Key to activity

Peak of ecological activity, presence reliable and predictable

Low level of abundance/activity/presence

Activity not occurring

Halyard Field start-up activities

Environmental Management

The Varanus Island Hub has a site environmental licence (number L6284/1992) issued under the Environmental Protection Act 1986 and the activities associated with the Halyard Field start-up and operations are in compliance with this license.

The implementation strategy detailed in the VI Hub Operations EP (EA-60-RI-186) and the GPSA EP (EA-00-RI-158) cover the environmental risks identified during HAZID Workshops for the Commissioning, Start-up and Operation of the Halyard Field, including roles and responsibilities, environmental education and training, emergency preparedness and incident reporting. Therefore, no additional environmental controls are required for the planned Halyard Field start-up and operations activities. Key environmental management commitments for the Halyard activities have been summarised in **Table 3** below.

Table 3: Key Environmental Management Commitments for Halyard Field Start-up and Operations Activities (see VI Hub Operations EP, EA-60-RI-186, for further details)

Activity	Avoidance, Mitigation and Management Measures
Operational Environmental Awareness	• Through inductions and educational material as per VI Hub Operations EP, all personnel are familiar with the environmental requirements of the VI Hub Operations EP and bridging documents, to ensure these guidelines and procedures are being followed. • Environmental issues specific to this activity shall be addressed in a pre-mobilisation toolbox meeting

Activity	Avoidance, Mitigation and Management Measures
Incident Reporting	• Use the Apache "*Hazard Reporting, Incident Notification and Investigation Procedure*" (AE-91-IF-002) to report incidents to DMP within 2 hours (OPGGS (Env) Regulations; 26A). • Recordable incidents to be reported to DMP at the end of each month (OPGGS(E) Regulations; 26B).
Deck drainage, chemical storage and management	• Follow Apache "*Refuelling and Chemical Transfer Management Procedure"* (AE-91-IQ-098) and "*Environmental Requirements For Offshore Marine Vessels*" (AE-91-IQ-202) • Maintain good housekeeping practices. • Store chemicals in bunded areas away from open drains and chemical containers are to be intact. • Use drip trays under all machinery and fuel points and valves. • In the event of a spill, take all actions to control the spill and divert deck drainage to on board containment tanks for treatment through the oil in water separator. • Ensure absorbent material is on board to use in soaking up chemical or oil spills on deck. • Report all spills through Apache "*Hazard Reporting, Incident Notification and Investigation Procedure*" (AE-91-IF-002). • All spills > 80 L are "*Reportable Incidents*" under the OPGGS(E) Regulations 2009 (26A) and must be reported to DMP within 2 hours, either directly by contacting the DMP Duty Inspector on 0419 960 621 or via the Apache Perth office. • All spills < 80 L are "*Recordable Incidents*" under the OPGGS(E) Regulations 2009 (26B) and must be reported to DMP at the end of each month via the Apache Perth office.
Spillage of production chemicals or treated water	• Carry out start-up activities during daylight hours only, weather permitting. • Follow Apache "*Refuelling and Chemical Transfer Management Procedure"* (AE-91-IQ-098) and "*Environmental Requirements for Offshore Marine Vessels*" (AE-91-IQ-202). • Visual inspection during commissioning and first operation to check for signs of leakage. • No exceedance of slug catcher processing rate to manage treated water disposal. • In event of a spill take all actions to control it and minimise impacts to the marine and/or terrestrial environment. • Report all spills to Apache Perth office (see Apache "*Hazard Reporting, Incident Notification and Investigation Procedure*", AE-91-IF-002). • All spills > 80 L are "*Reportable Incidents*" under the OPGGS(E) Regulations 2009 (26A) and must be reported to DMP within 2 hours, either directly by contacting the DMP Duty Inspector on 0419 960 621 or via the Apache Perth office. • All spills < 80 L are Recordable Incidents under the OPGGS(E) Regulations 2009 (26B) and must be reported to DMP at the end of each month via the Apache Perth office.
Liquid Waste Management	• Treated water must be disposed of through VI produced water system as per standard operating procedures. • Drum waste oil, grease and other liquid waste and return to VI for recycling as per "*VI Hub Operations EP*" and Waste Management Plan.

Activity	Avoidance, Mitigation and Management Measures
Solid Waste Management • Food scraps • Garbage • Litter • Scrap metal and wood etc	• All food scraps to be returned to Varanus Island for disposal as per VI Hub Operations EP and Waste Management Plan. • Do not dispose of debris, garbage or litter into the sea (skips need covers to prevent wind blown rubbish – especially plastics and cups). • Segregate industrial waste (scrap metals / drums etc) wherever possible for appropriate disposal onshore. • Reduce, reuse and recycle waste wherever practicable. • Record the volume and type of waste as per VI Hub Operations EP and Waste Management Plan. • Vessel waste management as per "*Environmental Requirements For Offshore Marine Vessels*" (AE-91-IQ-202)
Sewage discharge	• No sewage discharges from John Brookes platform *(unmanned facility). • Vessel sewage discharges as per "*Environmental Requirements For Offshore Marine Vessels*" (AE-91-IQ-202)
Fishing	• No fishing is permitted from the John Brookes Platform.

Consultation

The proposed Halyard -1 start-up and operations activities are not covered by any Native Title claim, and there are no Aboriginal Heritage areas in the vicinity of the proposed development.

Consultation with DSEWPC has been ongoing since the Halyard and Spar development was referred to the Department in August 2010.

A notice to AMSA (and the release of a "Notice to Mariners") and the Australian Hydrographic office were notified on the 17 January, 2011. No issues were identified from the consultation/notification process.

Apache's consultation process is ongoing for the Varanus Island operations activities of which the Halyard-1 well start-up and operations forms part thereof. These consultations are normally in the form of workshops with stakeholders for the particular activity that is to be conducted.

Reporting and notification to regulatory agencies is undertaken on a regular basis and will be carried out as per the commitments in the VI Hub Operations EP.

Further Details

For further information please contact:

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