

From: s22
To: s47F
Cc: s22
Subject: EPBC 2018/8319 Browse to North West Shelf - Commonwealth comments on Supplement [SEC=OFFICIAL]
Date: Tuesday, 4 August 2020 2:13:00 PM
Attachments: [2018-8319-Final FIS-Rev0-DAWF comments.pdf](#)

Hi s47F and s47F

Please see attached the Department's comments on the Supplement for the Browse to North West Shelf proposal (EPBC 2018/8319).

Please let me know if you have any questions or would like to discuss. If you could also follow up on whether the contacts have changed for Woodside, as I believe we were meant to have a discussion on s47F changing roles.

Kind regards,

s22

A/g Assistant Director | Major Projects West Section
Environment Assessments West (WA, SA, NT) Branch | Environment Approvals Division
Department of Agriculture, Water and the Environment | GPO Box 787 Canberra ACT 2601 |
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s22



Comments on the Supplement Report to the draft EIS/ERD for Browse to North West Shelf Development, Indian Ocean, WA (EPBC 2018/8319)

On 30 June 2020 (revised on 6 July 2020), Woodside Energy Ltd (Woodside) submitted Rev 0 of the Supplement to the draft EIS/ERD.

The following table has been prepared by the Department of Agriculture, Water and the Environment (DAWE) in consultation with the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) to provide input into whether DAWE consider the supplement adequately address the outstanding matters raised by DAWE/NOPSEMA and the public submissions received.

Further information is required from Woodside, as outlined in Table 1, in order for the Supplement to be considered adequate for publication.

Table 1: Department of Agriculture, Water and the Environment comments on the supplement

Relevant section of the supplement	DAWE Comment	Adequacy of the supplement
General	The Supplement does not include a description of the methodology applied by Woodside to identify, consider and respond to public comments. Please amend the supplement to include this to provide greater transparency and assist the public to more easily understand how Woodside identified, considered and responded to public comments.	Requires further information
1.1	Paragraph mentions NWS joint venture but no further information on what/who this is. Please provide a brief description of this so the public are aware of what this refers to.	Requires further information
1.2	Please amend the Department name to 'Commonwealth Department of Agriculture, Water and the Environment' and 'the then Department of the Environment and Energy' Please include details on the state process and why the submissions are not relevant to both processes, so the public understands the connections/differences between the proposals.	Requires further information
1.3.2	Please adjust the number of submissions received reflecting the additional review of the public submissions provided by WA. The numbers for Browse to North West Shelf Commonwealth submissions should be as follows: <ul style="list-style-type: none"> • Total of 19,898 submissions. Of the 19,898: <ul style="list-style-type: none"> ○ 19,789 are proforma submissions; ○ 99 standard submissions (received through the hub); and ○ 10 standard submissions (received through other pathways). 	Requires further information

1.3.2	Please specify the number of comments that were 'for the proposal', 'against the proposal' or 'not specified' within this section of the document.	Requires further information
Table 2-1 - First row below header row	Given the change in height described and expected line of sight distance, please provide the information has Woodside used to draw the conclusion that the light is not expected to be visible from Sandy Islet. This section should also discuss whether the intensity of light at the current identified receptors has changed rather than just that no additional receptors are being considered.	Requires further information
Table 2-1 – Ninth row below the header row	The Department notes the change. Please include a definition of what constitutes a 'Safety of life at sea event/SOLAS'.	Requires further information
Table 3-1	This table only includes the Department's advice and not the issues identified. Please include the Department's whole comment including the issues column to ensure the process/comment is transparent to the public.	Requires further information
Table 3-1 row 2-c	It is unclear why the state ERD is referred to here. Should this be a reference to the Commonwealth draft EIS?	Requires further information
Table 3-1 row 3	The Environment Quality Management Plan (EQMP), which has been provided to the state as part of the assessment, is relied upon to address public comments, and will be implemented for this project should be attached to the supplement.	Requires document to be attached
Table 3-1 row 6	Please make a clear statement whether or not geo-sequestration is proposed in the supplement, rather than reflecting that the draft EIS/ARD did not propose it.	Requires further information
LCA Report, ACIL Allen Economic Impact Assessment, AIMS study and EQMP	<p>The supplement must include all documents relied upon for the responding to public comments. These documents are referenced in multiple sections but are not attached to the supplement.</p> <p>To ensure public transparency please ensure that these documents are attached, and not simply 'weblinks' (which can 'break' resulting in the public not being able access these documents to review).</p>	Requires documents to be attached

5.34	<p>It is a requirement that the public comments be addressed within the Browse to North West Shelf supplement or a clear reference [within the supplement] to where the corresponding response is located in the North West Shelf Extension [EPBC 2018/8335] Response to Submissions.</p> <p>The Department accepts that it is Woodsides preference is for the National Heritage assessment information, and the response to public comments in relation to this assessment, will be addressed in North West Shelf Extension project [EPBC 2018/8335].</p> <p>However, in its current format the supplement does not clearly identify where each relevant response to public comments have been addressed in the North West Shelf Extension response to submissions. The supplementary report must include, for the public and regulators, a clear reference to where the corresponding response is located in the North West Shelf Extension Response to Submissions document.</p> <p>The supplement should include:</p> <ul style="list-style-type: none"> • reference to North West Shelf Extension Response to Submissions rather than just the North West Shelf Extension ERD (for which some documents have been amended since this time); • specific references to the sections within North West Shelf Extension Response to Submissions that address the National Heritage matters raised within specific public comments for the Browse to North West Shelf proposal; and • consider comments which may have only been submitted in response to the Browse to North West Shelf proposal and that may not have also been submitted to the North West Shelf Extension (should they exist). 	Requires further information
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<p>5.27 and 7.1 (Table 7-1)</p>	<p>A substantial number of submissions raised concerns in relation to the impacts of the project on the Scott Reef green turtle stock.</p> <p><i>CCWA state that the EIS downplays the impacts that the potential seabed subsidence risk could have on habitat critical to the survival of the green turtle. While the EIS/ERD acknowledges that 'slight impacts' are predicted to occur from drilling (i.e. sinking of the seabed), it concludes that 'reef growth rates are expected to match or exceed any sea level reduction' and considers the impact 'acceptable'. The CCWA asserts that the evaluation is unfounded and discounts the vulnerability of the Sandy Islet habitat to sea level rise, cyclones and industrial threats. Loss of habitat will significantly impact on the ecological functioning and process of the green turtle stock.</i></p> <p>While Section 5.27 acknowledges that subsidence is a risk, the evaluation of this risk in the Supplement does not address the CCWA point in relation to the compounded effects of subsidence combined with sea-level risk and increased tropical storm intensity attributed to human-induced climate change and the knock on consequences for future availability of habitat critical to survival of the species and stock recovery.</p> <p>Please evaluate the risk of subsidence in the context of:</p> <ul style="list-style-type: none"> • loss/modification of habitat critical to survival for the Scott Reef green turtle stock and the additive impacts from sea level rise; and • changing storm frequencies / intensity and storm surge associated with a changing climate. <p>This should include an estimate of the aerial extent / percentage loss of critical habitat predicted under these scenarios.</p> <p>This information is necessary to adequately address comments/claims that the project will impact on the ecological functioning of the green turtle stock.</p>	<p>Requires further information</p>
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<p>5.18</p>	<p>Multiple submissions raised mercury (Hg) content in the produced water (PW) stream and why no mercury recovery units for the PW stream are proposed on the FPSO facilities. Public comments noted concerned about use of language such Hg is 'expected to be partitioned', in absence of evidence or facts about this process. The supplement does not consider the potential for biota to be chronically exposed to high concentrations of Hg in water near the PW discharge sources, implications of Hg being transformed in situ once ingested, or the potential for consumption of those biota by higher levels of the food chain to result in bioaccumulation.</p> <p>Woodside should provide further information (including supporting evidence) about impacts and management of Hg in PW discharges. In particular, to support arguments around selection of measures to address Hg contamination (e.g. Hg recovery units), the response should benefit from further facts and evidence to support conclusions regarding 'expectations' for Hg to be partitioned in the environment and discussion of the potential for chronic near-source exposure, potential for transformation and ingestion and potential implications for bioaccumulation of Hg.</p> <p>Please also clarify the predicted extent of a mixing zone for the southern FPSO PW discharge.</p>	<p>Requires further information</p>
<p>5.20</p>	<p>The supplement describes additional controls adopted for drilling discharge associated with Torosa wells proposed in the State Proposal Area. While this is positive, the significant emphasis placed on these wells and their discharge management, creates some uncertainty with regard to the control measures that will apply to wells proposed in the Commonwealth Marine Area.</p> <p>The supplement refers to a threshold of 6.5mm for sediment deposition. This is not demonstrated as a suitable threshold for ensuring that acceptable levels of protection for environmental quality will be maintained.</p> <p>Further, controls for drilling discharges are referred to as being contained in the EQMP. This document is not provided and is required to be attached. The Supplement should include information that demonstrates that the controls identified are suitable to mitigate the specific risks presented by the activity.</p> <p>Please amend the supplement to:</p> <ul style="list-style-type: none"> • justify use of a 6.5mm sediment deposition threshold as the basis for arguing impacts are acceptable; and • explain how the controls identified for drilling discharges are suitable to mitigate the specific impacts presented by the project. 	<p>Requires further information</p>

6-1	<p>Please explain the relationship, if any, between objectives defined in the draft EIS and those presented in the Supplement.</p> <p>Where proposed environmental objectives in the draft EIS are proposed to be superseded by those in the supplement, please explain how these changes will result in the equivalent, or better, environmental protection performance outcomes</p> <p>Additional to this, the environment objectives would benefit from being better defined, as follows:</p> <ul style="list-style-type: none"> • defining the term ‘predicted impact areas’, which is used in some environmental objectives; • define the term ‘defined threshold’ relevant to objective 21; and • define the terms ‘substantial change’, ‘substantial adverse effect’, ‘lasting effect’ and ‘adverse effect’. 	Requires further information
Multiple sections including 4.22 and 5.28 – Impact to blue whales	<p>While there were no specific comments about the monitoring and management in place for blue whales, Woodside pointed back to MF-6 in the Supplement in response to public submissions raising concerns for the impact of the activity on blue whales.</p> <p>Section MF-6 details that Woodside has committed to undertaking monitoring programs throughout the project to verify impact predictions and inform adaptive management with monitoring objectives included in Section 4.2.2 of the Supplement, however, the objectives do not include adaptive management arrangements. The supplement should be updated to include information about the adaptive management program, including its implementation throughout the project.</p> <p>It is also stated in Section 5.28 that studies supported by Woodside have been used to inform the presence and distribution. The response provided to public submissions about blue whales (MF-9) indicates that monitoring studies will be used to inform adaptive management and that the environmental impact assessment has been informed by targeted studies, however, this does not appear to be the case when looking in further detail at the information provided in the Supplement and the objectives of the monitoring studies.</p> <p>Please detail in the supplement, the purpose for, and how, the verification studies are integrated with an adaptive management program and how the management program will feed into a change in mitigation or management measures.</p>	Requires further information

6-1 No. 1	This objective refers to the Browse project. Please clarify how this relates to the NWS Extension project and whether this objective includes consideration of National Heritage in relation to this environmental objective.	Requires further information
7.1	Please list the total number of submissions included within Attachment D.1.	Requires further information
7.1 Table 7-1 Multiple submissions raised the issue	To address public comments raised in the submissions, please provide further details on how the project is consistent with the principles of ESD, in particular the precautionary and inter-generational equity principles) in relation to GHG emissions. If Woodside considers that this is covered within the NWS Extension Response to Submissions, in respect to GHG emissions on National Heritage Vales, then a statement to this effect and reference to the particular section where this is considered must be included.	Requires further information
GHG MP – section 5.3.2	The Minister for the Environment no longer the responsible Minister for the <i>Carbon Credits (Carbon Farming Initiative) Act 2011</i> . Please amend this section to reflect the Minister now responsible.	Requires further information
Table 3-2/ Appendix B/ Table 5-29	<p>Please update Table 5-29 to identify sea country under 'Cultural Values' for the Kimberley Marine Park.</p> <p>We note that in previous discussions between Marine Parks and Woodside, Woodside acknowledged that is should be included in Table 5-29.</p> <p>However, the Supplementary report states that is has not been included it in the updated version (Table 5-29 within Appendix B of the supplement) due to the depth and location of the proposed Browse Trunk Line route beyond the ancient coastline. The rationale for this is not clear to the Department but, it remains our view that sea country is still important to consider and is not necessarily limited by the ancient coastline.</p> <p>Please update Table 5-29 within Appendix B of the Supplement to include reference to tourism and recreational activities under Social and Economic Values. We note that in previously discussions between Marine Parks and Woodside, Woodside have acknowledged this missing reference to tourism and recreation activities and that Table 5-29 within Appendix B of the Supplement should be updated.</p>	Requires further information

<p>7.1 Table 7-1 No. 19</p>	<p>Woodside must specifically address within the Supplement the claim raised in public comments in relation to gas demand projections in target end user markets, including how uncertainties associated with future projected demand for LNG has been identified and accounted for in evaluating the GHG-related environmental impacts of the project.</p> <p>The public submission noted that WEO 2019 report indicates gas demand would peak sooner than Woodside anticipates (global peak by late 2020's and Asia peak in late 2030's). The submission asserts that there would be much lower Asian growth in the demand for gas overall (31% not 130%), that the coal-to-gas switch is less feasible economically, and LNG faces uncertainty in terms of scale of imports, their durability and price competitiveness.</p>	<p>Requires further information</p>
<p>7.1 Table 7-1 No. 24</p>	<p>Comment 24 raises compensation issues in relation to oil spills.</p> <p>Please provide some information on how compensation issues would be addressed in the event of a spill.</p>	<p>Requires further information</p>
<p>7.1 Table 7-1 Multiple submissions raised the issue.</p>	<p>Multiple submissions raise concerns around the impacts of noise to other species of cetaceans besides the Pygmy Blue Whale.</p> <p>Please explain how the evaluation of noise impacts is applicable to and accounts for other species of cetaceans that occur within the project area.</p>	<p>Requires further information</p>

From: s47F
To: s22
Cc: s47F, s22
Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]
Date: Wednesday, 19 February 2020 5:10:10 PM
Attachments: [Browse to NWS Project, DoEE, EPA and NOPSEMA Agenda \(March 2020\), Draft EIS ERD \(1\).docx](#)

Hi s22 and all,

In response to your suggestion, please see attached a proposed agenda for the next meeting.

We are now thinking perhaps Tuesday 3 March 9-11am for the next meeting in Perth. Appreciate your advice on whether this proposed date/time is suitable.

Many thanks

s47F

s47F

Senior Corporate Affairs Adviser | Developments



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From: s22
Sent: Wednesday, 19 February 2020 9:39 AM
To: s47F, s22
Cc: s47F, s22
Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s22

Thanks for the summary of the previous meeting, I understand that it went well and that there was lot of good conversation around some of the key matters for this project.

I agree that there is a lot of value for all parties in continuing to keep these forums going. If you could send through a proposed agenda for the next meeting it would assist in aligning things at this end, and might help discussions around the most suitable timing for the next meeting.

Happy to discuss.

Cheers,

s22

Major Projects West Section
Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division
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s22

From: s47F

Sent: Monday, 17 February 2020 2:57 PM

To: s22

Cc: s47F

s22

Subject: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA

Hi All,

Please see below a high level summary of last week's Browse draft EIS/ERD clarification meeting.

We propose another meeting on Thursday 27th February in Perth (1-3pm). It would be appreciated, if DAWE, EPA and NOPSEMA representatives could please advise of availability to attend.

Many thanks

s47F

-

Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA:

-

- EPA advised that they plan on providing all agency comments and stakeholder submissions in response to the Browse draft EIS/ERD (both State and Commonwealth processes) to WEL by 21 February.
- DAWE (formerly DoEE) advised that they would provide written clarification to WEL regarding the points discussed at 12 February meeting (and 23 January meeting and 18 December meeting) together with any other comments regarding the EIS/ERD by 21 February.
- WEL to continue to prepare a table to respond to all agency comments and stakeholder submissions with regards to the Browse draft EIS/ERD.
- All agreed that there was value in meeting collectively again following 21 February, to discuss the next steps noting various process timeframes and requirements. [Proposed next meeting in Perth 27 February (TBC)].

s47F

Senior Corporate Affairs Adviser | Developments



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Agenda

Agenda: Browse to NWS Project, Woodside, DoEE, WA EPA and NOPSEMA meeting, Primary environmental approval

Date /Time: Tuesday 3 March 2020, 9:00 – 11:00am (WST) (TBC)

Location: Mia Yellagonga, Level 3 (Booking reference: BR-xx)

Attendees Required and area they are representing:

s47F		
s47F		
s22		
s22		
s22		
s22		

Apologies:

Purpose:

- Discuss items arising from comments
- Forward process - next steps

Item	Description	Time	Notes
1	Introductions – welcome and building induction	5 mins	s47F
2	Matters arising from comments (public and agency)	60 mins	All
3	Update on preparation of Supplement Report	15 mins	Woodside
4	Forward process: <ul style="list-style-type: none"> • Assessment process/timeframe 	10 mins	All
5	AOB	5 mins	All

Action Items:

No.	Description	Action by	Due date
1			
2			
3			
4			

From: s22
To: s47F s22
Cc: s22
Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]
Date: Tuesday, 3 March 2020 5:18:27 PM
Attachments: [image003.png](#)

Hi s47F

Yes, the 11th at 11am works here. I'll put a placeholder in the calendar.

If you could please circulate an agenda prior to the meeting it would be much appreciated.

Cheers,

s22

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Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division
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s22

From: s47F
Sent: Tuesday, 3 March 2020 4:36 PM
To: s22
Cc: s22
Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s22
So to confirm Wednesday 11th March at 11am works for DAWE?

Many thanks
s47F

From: s22
Sent: Tuesday, 3 March 2020 1:29 PM
To: s47F s22
Cc: s22
Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Apologies, apparently the 9th is a public holiday here so the 10th, 11th or 13th would be the best options.

s22

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s22

From: s22

Sent: Tuesday, 3 March 2020 3:03 PM

To: s47F s22

Cc: s22

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s47F

We can make 11am on the 10th March work. Alternatively, the following times would also work for DAWE:

- 9th – 11am (perth time) onwards
- 10th – 12:30pm (perth time)
- 11th – 11am
- 13th – 11am

Cheers,

s22

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s22

From: s47F

Sent: Tuesday, 3 March 2020 2:56 PM

To: s22

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s22 and s22

Does 11am (Perth time) on the 10th March work for a teleconference?

Many thanks

s47F

From: s22

Sent: Thursday, 27 February 2020 1:29 PM

To: s47F s22

s22

Subject: FW: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Please see meeting advice below.

Cheers

s22

From: s22

Sent: Thursday, 27 February 2020 1:09 PM

To: s22

Subject: FW: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s22

Tuesday 17th at 3.00pm works for s22 if the meeting is held in Joondalup.

Monday 16th works really well 3pm – 5pm – however that wasn't a suggested date.

Wednesday 18th is available.

s22

From: s22

Sent: Thursday, 27 February 2020 12:53 PM

To: s22

s47F

s22

Cc: s22

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi All,

No dramas, unfortunately the 9th isn't an option for my team. Sorry s47F This is like trying to herd cats!

We are already in Perth on the 17-18th, so if possible can I suggest that we meet then instead? Happy to have a teleconference in the meantime if there are issues that can be dealt with in that way before then.

Happy to discuss.

Cheers,

s22

Major Projects West Section

Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division

s22

From: s22

Sent: Thursday, 27 February 2020 3:10 PM

To: s47F

s22

Cc: s22

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

I apologise the 11th is not good for us in WA I was unaware of a requirement to be available.

I have confirmation that 9th March between 3pm and 5 pm works.

Cheers

s22

Manager Strategic Assessment, EPA Services

[Department of Water and Environmental Regulation](#)

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Western Australia.*



Government of Western Australia
Department of Water and Environmental Regulation

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From: s47F

Sent: Thursday, 27 February 2020 11:37 AM

To: s22

Cc: s22

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s22

Slight tweak to proposed time, does 10-12 on Wednesday 11th March work?

Many thanks

s47F

From: s22

Sent: Thursday, 27 February 2020 9:30 AM

To: s47F

Cc: s22

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s47F

The Tuesday isn't the best day for our team. Would Wednesday the 11th between 11am-1pm work?

Cheers,

s22

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s22

From: s47F

Sent: Wednesday, 26 February 2020 4:58 PM

To: s22

Cc: s22

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s22 and s22

It looks like the week after next would be better.

Does Tuesday 10th March 2-4pm work for both DAWE and EPA?

I can then respond to s22 earlier email to the broader group confirming.

Appreciate your advice.

Many thanks

s47F

From: s22

Sent: Tuesday, 25 February 2020 12:49 PM

To: s47F

Cc: s22

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s47F

I spoke to s22 today following her earlier email. Unfortunately s22 and s22 are unable to be in Perth on Thursday next week. If next week doesn't work, we could look to arrange something for the following week?

Cheers,

s22

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s22

From: s47F
Sent: Tuesday, 25 February 2020 2:50 PM
To: s22
Cc: s22
Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s22

Noting s22 earlier email (attached), does Thursday 5th March 11-12 (with a possibility to extend 30 mins) work instead?

Many thanks

s47F

From: s22
Sent: Tuesday, 25 February 2020 10:36 AM
To: s22 s47F
s22
s22
s22
s22
Cc: s47F
s22
Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Morning all,

I've spoken to NOPSEMA and DWER to look at what the best available time might be across the agencies. DWER, NOPSEMA and ourselves would be available to meet on Tuesday 3rd March between 11am-1pm.

s47F – are you able to confirm please if this time would suit WEL, and that there is a room available at your offices for the meeting?

Attendees from DAWE will be s22 and s22

Cheers,

s22

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s22

From: s22
Sent: Tuesday, 25 February 2020 1:10 PM
To: s47F s22
[Redacted]
[Redacted]
[Redacted]
Cc: s47F s22
[Redacted]
Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Morning,

Thursday 5th March 11-12 (with a possibility to extend 30 mins) works well for EPA Services.

Many thanks

s22

Manager Strategic Assessment, EPA Services

Department of Water and Environmental Regulation
Prime House, 8 Davidson Terrace, JOONDALUP WA 6027
Locked Bag 10, Joondalup DC, WA 6919
T: s22 |
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From: s47F

Sent: Wednesday, 19 February 2020 2:10 PM

To: s22

[Redacted]

Cc: s47F

[Redacted] s22

[Redacted]

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s22 and all,

In response to your suggestion, please see attached a proposed agenda for the next meeting.

We are now thinking perhaps Tuesday 3 March 9-11am for the next meeting in Perth. Appreciate your advice on whether this proposed date/time is suitable.

Many thanks

s47F

s47F

Senior Corporate Affairs Adviser | Developments



Woodside Energy Ltd.
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

s47F
www.woodside.com.au
f t in y @

From: s22

Sent: Wednesday, 19 February 2020 9:39 AM

To: s47F s22

[Redacted]

Cc: s47F

[Redacted] s22

[Redacted]

Subject: RE: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA [SEC=OFFICIAL]

Hi s47F

Thanks for the summary of the previous meeting, I understand that it went well and that there was lot of good conversation around some of the key matters for this project.

I agree that there is a lot of value for all parties in continuing to keep these forums going. If you could

send through a proposed agenda for the next meeting it would assist in aligning things at this end, and might help discussions around the most suitable timing for the next meeting.

Happy to discuss.

Cheers,

s22

Major Projects West Section

Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division

Department of Agriculture, Water and the Environment | GPO Box 787 Canberra ACT 2601 |

awe.gov.au

s22

From: s47F

Sent: Monday, 17 February 2020 2:57 PM

To: s22

Cc: s47F

s22

Subject: Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA

Hi All,

Please see below a high level summary of last week's Browse draft EIS/ERD clarification meeting.

We propose another meeting on Thursday 27th February in Perth (1-3pm). It would be appreciated, if DAWE, EPA and NOPSEMA representatives could please advise of availability to attend.

Many thanks

s47F

-

Summary of Browse draft EIS/ERD clarification meeting – 12 February 2020 – WEL, DAWE (formerly DoEE), EPA and NOPSEMA:

-

- EPA advised that they plan on providing all agency comments and stakeholder submissions in response to the Browse draft EIS/ERD (both State and Commonwealth processes) to WEL by 21 February.
- DAWE (formerly DoEE) advised that they would provide written clarification to WEL regarding the points discussed at 12 February meeting (and 23 January meeting and 18 December meeting) together with any other comments regarding the EIS/ERD by 21 February.
- WEL to continue to prepare a table to respond to all agency comments and stakeholder submissions with regards to the Browse draft EIS/ERD.
- All agreed that there was value in meeting collectively again following 21 February, to discuss the next steps noting various process timeframes and requirements. [Proposed next meeting in Perth 27 February (TBC)].

s47F

Senior Corporate Affairs Adviser | Developments



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From: s22
To: s47F
Cc:
Subject: RE: Browse Document Access [SEC=OFFICIAL]
Date: Monday, 6 July 2020 3:08:00 PM
Attachments: [image001.jpg](#)
[image002.jpg](#)
[image003.jpg](#)
[image004.jpg](#)
[image005.jpg](#)
[image006.jpg](#)

Thanks s47F – I haven't received anything from s47F so far today though. Should it have come through?

s22

Major Projects West Section
Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division
s22

From: s47F
Sent: Monday, 6 July 2020 1:50 PM
To: s22
Cc: s47F
Subject: Browse Document Access

Hi s22
You would have just received a new transmittal from s47F You need to log in (instructions are on the site) and then the password is:

s47G(1)(a)

If you have trouble accessing please let us know.

Thanks

s47F
Environment Manager | Development Planning & Sustainability | HSEQ



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E: www.woodside.com.au

Please note that I don't routinely read cc'd emails

From: s47F
To: s22
Cc: s47F
Subject: EPBC 2018/8319 Browse response documents
Date: Tuesday, 30 June 2020 6:37:16 PM
Attachments: [image001.jpg](#)
[image002.jpg](#)
[image003.jpg](#)
[image004.jpg](#)
[image005.jpg](#)
[image006.jpg](#)

s47G(1)(a)

Hi s22

Please see attached transmittals for the following documents:

- Proposed Browse Project Supplement Report to draft EIS/ERD for review/assessment
- Proposed Browse Project Response to Submissions to State ERD for information

Please do not hesitate to contact s47F or s47F if you have any questions.

Kind regards, s47F

s47F

Senior Environment Adviser | Browse Development



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Australia



From: s47F on behalf of s47F ([TATA CONSULTANCY SERVICES LTD](#))
To: s47F
Subject: Proposed Browse Project - Response to Submissions to State Environmental Review Document (ERD)
Date: Tuesday, 30 June 2020 6:25:53 PM
Attachments: [ATT00001.png](#)

Document Transmittal



Project Number: B2NWS **Transmittal No:** WOODSIDE-000207
Project Title: Browse to NWS Project
Date: 30 June 2020, 04:24:20 PM +08:00
Reason for Issue: Issued for Information
Subject: Proposed Browse Project - Response to Submissions to State Environmental Review Document (ERD)

Message:

Kind regards,
Browse Document Control

Transmitted To:

Company	Name
Department of Water, Environment and Agriculture	s22

Transmitted Cc:

Company	Name
Woodside	s47F

s47G(1)(a)

Click on Document Nos to download them individually.

Item	Document No	Rev	Sts	Title	External Doc No	Vendor Doc No
1	s22(1)(ii)	00	IFU	Proposed Browse Project - Response to Submissions to State Environmental Review Document (ERD)		

Transmitted by: s22 Woodside

From: s47F on behalf of s47F ([TATA CONSULTANCY SERVICES LTD](#))
 To: s47F
 Subject: Proposed Browse Project - Supplement Report to Draft Environmental Impact Statement/Environmental Review Document (draft EIS/ERD)
 Date: Tuesday, 30 June 2020 6:24:21 PM
 Attachments: [ATT00001.png](#)

Document Transmittal



Project Number: B2NWS **Transmittal No:** WOODSIDE-000206

Project Title: Browse to NWS Project

Date: 30 June 2020, 04:23:03 PM +08:00

Reason for Issue: Issued for Review

Subject: Proposed Browse Project - Supplement Report to Draft Environmental Impact Statement/Environmental Review Document (draft EIS/ERD)

Message:

Kind regards,
Browse Document Control

Transmitted To:

Company	Name
Department of Water, Environment and Agriculture	s22

Transmitted Cc:

Company	Name
Woodside	s47F

47G(1)(a)

Click on Document Nos to download them individually.

Item	Document No	Rev	Sts	Title	External Doc No	Vendor Doc No
1	s22(1)(ii)	00	IFU	Proposed Browse Project - Supplement Report to Draft Environmental Impact Statement/Environmental Review Document (draft EIS/ERD)		

Transmitted by: s47F Woodside

From: s22
To: s47F
Cc: s47F
Subject: RE: EPBC 2018/8319 Browse response documents [SEC=OFFICIAL]
Date: Wednesday, 1 July 2020 3:19:37 PM

Hi s47F

Thanks. I can confirm that I have successfully downloaded a copy of both the State Response to Submissions and the Supplementary report to the draft EIS/ERD. Both documents are revision 0.

I understand that s47F is looking to organise a general catch on Browse for next week. Look forward to talking further then.

Cheers,

s22

Major Projects West Section
Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division

s22

From: s47F

Sent: Tuesday, 30 June 2020 6:36 PM

To: s22

Cc: s47F

Subject: EPBC 2018/8319 Browse response documents

Hi s22

Please see attached transmittals for the following documents:

- Proposed Browse Project Supplement Report to draft EIS/ERD for review/assessment
- Proposed Browse Project Response to Submissions to State ERD for information

Please do not hesitate to contact s47F or s47F if you have any questions.

Kind regards, s47F

s47F

Senior Environment Adviser | Browse Development



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Perth WA 6000
Australia



From: s22
To: s47F
Cc: s47F, s22
Subject: RE: EPBC 2018/8319 Browse response documents [SEC=OFFICIAL]
Date: Monday, 6 July 2020 3:14:00 PM
Attachments: [image001.jpg](#)
[image002.jpg](#)
[image003.jpg](#)
[image004.jpg](#)
[image005.jpg](#)
[image006.jpg](#)
[image007.png](#)

Thanks. I was wondering about the other version.

We will disregard the email from the 30th and take the link below to be the most up to date version of the Supplementary and Response to submissions.

Cheers,

s22

Major Projects West Section
Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division

s22

From: s47F
Sent: Monday, 6 July 2020 1:46 PM
To: s22
Subject: EPBC 2018/8319 Browse response documents

From: s47F
To: s22
Cc: s47F
Expires: 8/5/20 11:59:59 PM WST

Hi s22

I refer you to updated send file links for the following documents:

- Proposed Browse Project Supplement Report to draft EIS/ERD for review/assessment (BD0006RH0000022.00.IFU.00.01.pdf)
- Proposed Browse Project Response to Submissions to State ERD for information (BD0006RH0000023.00.IFU.00.01.pdf)

Please accept our apologies as the transmittals sent on 30 June erroneously included draft documents and the links have now been deactivated. Accordingly, please disregard the documents sent on 30 June 2020.

A separate email with the password to the send file link will also be provided.
Please do not hesitate to contact s47F or I if you have any questions.

Regards,

s47F

Environment Manager | Development Planning & Sustainability | HSEQ



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Sent from [Woodside Sendfile](#)

From: s47F
To: s22
Cc: s22
s47F
Subject: RE: EPBC 2018/8319 Browse to North West Shelf - Commonwealth comments on Supplement [SEC=OFFICIAL]
Date: Tuesday, 4 August 2020 6:53:28 PM

Hi s22

Acknowledge receipt of the Department's comments on the Supplement to the Draft EIS/ERD.

Thanks, we will review and revert if we have any queries or points for further clarification.

Please note in terms of role changes, s47F and s47F have both moved onto new roles - s47F s47F (cc'd) is now the Browse VP, and I have taken on the Browse Environment Lead role.

Kind regards,
s47F

s47F
Environment Adviser | Developments Environment



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From: s22
Sent: Tuesday, 4 August 2020 12:14 PM
To: s47F
s47F
Cc: s22
s22
s47F
Subject: EPBC 2018/8319 Browse to North West Shelf - Commonwealth comments on Supplement [SEC=OFFICIAL]

Hi s47F and s47F

Please see attached the Department's comments on the Supplement for the Browse to North West Shelf proposal (EPBC 2018/8319).

Please let me know if you have any questions or would like to discuss. If you could also follow up on whether the contacts have changed for Woodside, as I believe we were meant to have a discussion on s47F changing roles.

Kind regards,
s22

A/g Assistant Director | Major Projects West Section
Environment Assessments West (WA, SA, NT) Branch | Environment Approvals Division
Department of Agriculture, Water and the Environment | GPO Box 787 Canberra ACT 2601 |



From: s47F
To: s22
Cc: s47F
Subject: Response to DAWE letter 24 February
Date: Tuesday, 10 March 2020 6:35:05 PM
Attachments: [Woodside response - DAWE - 10 March 2020.pdf](#)

Hi s22

Further to your correspondence of 24 February, please see attached Woodside's response.

We look forward to meeting with you and your colleagues tomorrow – noting that you are joining via teleconference.

Many thanks

s47F

s47F

Senior Corporate Affairs Adviser | Developments



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Please direct all responses/queries to:

s47F

10 March 2020

Attn: s22

Major Projects West Section

Department of Agriculture, Water and the Environment
51 Allara Street
Canberra ACT 2601

Dear s22

PROPOSED BROWSE PROJECT, FURTHER ADVICE ON DRAFT ENVIRONMENTAL IMPACT STATEMENT (EPBC 2018/8319)

Thank you for the Department of Agriculture, Water and the Environment's (DAWE) letter dated 24 February 2020. We acknowledge that the draft EIS was approved for publication on the basis that it is in accordance with the EIS Guidelines and that the draft EIS will need to be finalised in accordance with section 104 of the *Environment Protection and Biodiversity Act 1999* (Cth), taking into account comments received and summarising how those comments have been addressed.

Woodside, as Operator for and on behalf of the Browse Joint Venture (Woodside Browse Pty Ltd, Shell Australia Pty Ltd (Shell), BP Developments Australia Pty Ltd (BP), Japan Australia LNG Ltd (MIMI Browse Pty Ltd) and PetroChina International Investment (Australia) Pty Ltd (PetroChina)) has prepared responses to DAWE's letter in the attached table.

We look forward to meeting with DAWE, NOPSEMA and EPA on 11 March to discuss the attached responses, response to public comments and preparation of the Supplement Report.

s47F

Richard van Lent

Senior Vice President Browse

Attachment A: Woodside responses to further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319			
Topic	Issue	Advice on key considerations for WEL	Woodside Response
1. Environmental objectives and evaluation to demonstrate objectives can be met	<p>Context Table 6-7 provides an overview of environmental receptor sensitivity, environmental objectives and a summary of environmental context.</p> <p>Issues identified from adequacy check and initial preliminary review Proposed environmental objectives are currently high-level include ambiguous terminology and do not establish a measurable basis on which to compare predicted levels of impact and inform monitoring and adaptive management.</p> <p>The objectives set need to be measurable, achievable and specific (to the activity or aspect of the project) and the environment that may be affected. Examples of inadequacies are provided below. If the Minister were to approve the proposed action, these objectives could be the basis of outcomes-based conditions that may be attached to an approval. For further information on outcomes based conditions please refer to the Outcomes-Based conditions policy (2016) available at https://www.environment.gov.au/system/files/resources/4519549d-7496-4146-8dd4-58d55a7457cb/files/outcomes-based-conditions-policy.pdf.</p> <p>Marine reptiles Proposed objectives for marine reptiles are inadequate because: Objective 12 is not specific to the habitats critical to survival and BIAs for marine turtle populations that utilise Sandy Islet for nesting and Scott Reef for inter-nesting and foraging. In addition, there is no measurability to the term 'substantial' so that it is clear what extent, duration and severity of habitat modification is proposed to be</p>	<p>WEL should review the environmental objectives outlined in the draft EIS to ensure that objectives are measurable, specific and achievable.</p> <p>Updated objectives should be provided in the Supplementary Report along with sufficient information to:</p> <ul style="list-style-type: none"> demonstrate clearer connection to and consistency with relevant statutory requirements. (This should include requirements of recovery plans for listed threatened species). demonstrate how the objectives are able to be met through logical, well-reasoned and scientifically supported discussion. In framing up the objectives, WEL should consider the requirements outlined under section 139(1)(b) of the <i>Environment Protection and</i> 	<p>Noted. As discussed, the terminology used in the Environmental Objectives was based on the EPBC Significant Impact Guidelines.</p> <p>With regard to Conservation Management Plans and Recovery Plans, the discussion on 12 February 2020 with DAWE provided further clarity regarding regulator expectations and will inform the preparation of the Supplement Report.</p>

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319		
	<p>acceptable.</p> <p>Objective 13 uses the term '<i>seriously</i>' which is not defined and the objective does not specifically apply to relevant marine turtle stocks and associated life stages potentially affected.</p> <p>Objective 16 does not appear to be measurable as the information contained in the content of the EIS/ERD does not demonstrate that there is sufficient baseline data upon which to measure changes in the distribution of a population.</p> <p>The objectives do not capture key recovery plan requirements and do not set levels of environmental performance at levels that are clearly not inconsistent with recovery plans. Relevant recovery plan requirements include:</p> <p>Adaptively manage turtle stocks to reduce risk and build resilience to climate change and variability.</p> <p>Manage anthropogenic activities to ensure marine turtles are not displaced from identified habitat critical to the survival.</p> <p>Manage anthropogenic activities in Biologically Important Areas to ensure that biologically important behaviour can continue.</p> <p>Marine mammals</p> <p>Proposed objectives for marine mammals are inadequate because:</p> <p>Objective 12 is not specific to the BIAs for blue whales that may forage in waters off Scott Reef. In addition, the term '<i>substantial</i>' is not defined or clearly measurable. It is therefore unclear what extent, duration and severity of habitat modification is proposed to be acceptable.</p> <p>Objective 13 refers to the term '<i>seriously</i>' which is not defined and does not specifically apply to relevant marine mammal populations.</p> <p>Objective 15 to not have a '<i>substantial adverse effect on a population...or the spatial distribution of a population</i>' is not measurable and the content of the EIS/ERD does not demonstrate access to adequate baseline data to measure whether any changes to population distribution or health have occurred.</p> <p>The objectives do not reflect key requirements from the</p>	<p><i>Biodiversity Act 1999</i> (EPBC Act), specifically that:</p> <p><i>'in deciding whether or not to approve for the purposes of a subsection of section 18 or section 18A the taking of an action, and what conditions to attach to such an approval, the Minister must not act inconsistently with ... (b) a recovery plan or threat abatement plan. ...'</i></p> <p>In particular, WEL need to demonstrate that the proposed action is not inconsistent with any relevant recovery plan or threat abatement plan under the EPBC Act, including, but not limited to:</p> <p>Department of the Environment and Energy (2017). <i>Recovery Plan for Marine Turtles in Australia</i>. Australian Government, Canberra.</p> <p>Department of the Environment (2015). <i>Conservation Management Plan for the Blue Whale - A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999</i>. Canberra, ACT: Commonwealth of Australia.</p> <p>This should include</p>

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319			
		<p>Conservation Management Plan (CMP), which is a recovery plan made under the EPBC Act in effect from 3 October 2015, for blue whales or set a level of environmental performance that would ensure the project is managed in a manner not inconsistent with the requirements of the CMP for blue whales. Specifically: Manage anthropogenic noise in biologically important areas such that any blue whale can continue to utilise the area without injury, and is not displaced from a foraging area (Action Area A.2).</p> <p>Ensure the risk of vessel strikes on blue whales is considered when assessing actions that increase vessel traffic in areas where blue whales occur and if required appropriate mitigation measures are implemented (Action Area A.4).</p> <p>Continue to meet Australia's International commitments to reduce greenhouse gas emissions (Action Area A.3).</p>	<p>consideration of specific statements within the recovery plans; for example, recovery action tasks, priority actions and recovery objectives.</p> <p>For context, since the approval (14 August 2015) of the previous Browse FLNG assessment (EPBC 2013/7079), there is new relevant context that is important for informing the environmental impact assessment presented in the EIS. Examples include the Conservation Management Plan for the Blue Whale (2015), the Recovery Plan for Marine Turtles in Australia (2017) and National Light Pollution Guidelines for Wildlife (Final released in January 2020 and available here: https://environment.gov.au/biodiversity/publications/national-light-pollution-guidelines-wildlife).</p>
2. Threatened species	Whales	<p>Context: The pygmy blue whale (East-Indian Ocean) is a subspecies of blue whale that is listed as data-deficient on the IUCN red list, though the blue whale at the species level is listed as endangered under the EPBC Act and the definition of a species in the EPBC Act includes a sub-species therefore encompassing the pygmy blue whale under the endangered listing. The waters surrounding Scott Reef are identified in DAWE published resources as a 'possible foraging BIA' for the pygmy blue whale. Under the CMP for the Blue Whale, the requirements that apply to foraging BIAs also apply to 'possible foraging areas'. The CMP for the Blue Whale identifies four key threats inhibiting the recovery of blue</p>	<p>WEL should provide clearer, logical and robust impact and risk evaluation that acknowledges the potential for blue whales to occur within the project area and the potential ongoing importance of the Scott Reef foraging BIA for the population.</p> <p>The EIA for whales should demonstrate the impacts and the risks of the activity both in</p> <p>Context: Noted with reference to the pygmy blue whale (East-Indian Ocean) subspecies and the CMP for the Blue Whale which is described and referenced in Section 5.3.2.5.2 of the draft EIS/ERD.</p> <p>The draft EIS/ERD presents best available knowledge supporting the seasonal presence of pygmy blue whales within the Project Area (refer to Section 5.3.2.5.2) and particularly, the possible foraging area at Scott Reef. Furthermore, pygmy blue whale density estimates (that conservatively account for an increasing population) were used to assess underwater noise impacts to the possible</p>

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319		
	<p>whales. Of these four threats, three reflect potential impacts and risks of the proposed Browse Project.</p> <p>Noise interference – specifically the impact of seismic, drilling, gas processing, and shipping noise on the ability of blue whales to find food or a mate, masking of biologically important cues, behavioural disturbance, displacement from essential resources, and the potential for injury/death.</p> <p>Vessel disturbance – specifically the risk of vessel strike and the behavioural disturbance of whales from industrial, recreational and commercial activities.</p> <p>Climate change and variability – specifically the impact of ocean warming on changing species ranges, ocean dynamics and the subsequent availability of krill, as well as the impact of ocean acidification on the fecundity and sustainability of krill populations.</p> <p>In general, the outcomes of the evaluation are largely supported by the assumption that the presence of blue whales within the project area is unlikely. Given limitations associated with current data and contemporary knowledge on distribution and abundance, as well as habitat utilisation at Scott Reef, this isn't a situation that lends itself to supporting the position that the presence of blue whales in the project area is unlikely.</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p> <p>Aspect - Noise Based on the CMP for Blue Whales, the potential impacts of industrial noise are ranked as 'moderate' with climate change and variability ranked as 'high'. Oil and gas platforms are identified as a threat for displacement of blue whales in offshore waters (CMP p.27) with the associated noise impacts assessed as 'minor' and 'almost certain'. By contrast, the Draft EIS indicates the</p>	<p>isolation and cumulatively.</p> <p>The EIA and objectives will need to demonstrate consistency with the Conservation Management Plan for Blue Whale including the actions and objectives within the plan and how the proposed action is not inconsistent with the CMP for the Blue Whale and would not result in an unacceptable impact.</p> <p>In order to respond to the issues identified to date, WEL could consider committing to further studies and monitoring. This could include ongoing monitoring of received levels relative to adopted impact thresholds to verify the acceptability of received levels of underwater noise to cetaceans, and targeted acoustic and tracking studies.</p> <p>Any future survey design to understand the distribution and abundance of blue whales in this habitat would need to adequately take into account inter-annual variation in blue whale habitat use and distribution so that appropriately designed to capture temporal variability at seasonal and annual timeframes.</p>
		<p>foraging area at Scott Reef (refer to Section 6.3.8).</p> <p>The available pygmy blue whale data was determined to be adequate for the purposes of impact assessment and management planning based on the lack of significantly altered regional cumulative impacts (that would affect whale populations) since collection, ability to extrapolate population trends using existing literature, and conservative interpretation of available data applied to the impact assessment.</p> <p>The draft EIS/ERD already commits to updating existing pygmy blue whale data by targeted monitoring programs to verify impact predictions and inform adaptive management approaches at relevant times throughout the proposed Browse Project life cycle. Objectives of the monitoring program(s) will be clarified in the Supplement Report.</p> <p>Aspect – noise: It is acknowledged that the Conservation Management Plan (CMP) for Blue Whales ranks industrial noise as a 'moderate' level threat. The CMP identifies threats and takes into consideration the potential impacts on Blue Whales at a population level and considers impacts that may have a population consequence (including if this may occur based on individuals). The impact assessment presented is not inconsistent with the objectives of the CMP as it does not prevent, or compromise or render less effective any actions identified in the plan. The draft EIS/ERD does not take the position that any noise impacts on pygmy blue whales within the project area are unlikely. It concludes that <i>significant</i> impacts (as defined within the EPBC Act Significant Impacts Guidelines) are <u>unlikely</u>. The impact assessment also identifies risks and potential impacts associated with specific project activities, within a small proportion of the total distribution area of this species and specifically, the possible foraging area at Scott Reef, and concludes that the outcomes are not inconsistent with objectives and actions in the CMP.</p> <p>The outcomes of several studies were integrated into the draft EIS/ERD, including the outcomes of the <i>Woodside</i></p>

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	<p>potential for noise impacts to be unlikely with a consequence of 'minor' (p.369). The conclusions of the risk assessment in the Draft EIS are based on the evaluation that "low numbers of transient marine mammals within the vicinity of the noise source may occur... Given that relatively low numbers of transient marine mammals are expected to occur seasonally within the project area, only slight behavioural modifications are expected to occur with no long term effects at a species population level" (p.15). Based on the evaluation provided to support this conclusion, it does not appear that the environmental impact assessment has taken into consideration important context from the CMP for Blue Whales, or the importance of the Scott Reef area as a foraging BIA for blue whales.</p> <p>Further, the outcomes and conclusions of the environmental impact assessment do not appear to be supported by modelling outputs and sufficient baseline data to justify assumptions that underlie the evaluation. For example:</p> <p>Outcomes of acoustic recording studies do not appear to have been taken into account in the draft EIS/ERD – e.g. "Woodside Kimberley Sea Noise Logger Program September 2006 to June 2009 Whales, Fish and Man Made Noise. Specifically the year round presence of Bryde's whales and regular presence of Blue Whales. Specifically between September 2008 and June 2009 (1 season) a minimum of 14 blue whales were detected singing within the Scott Reef channel. The above report also demonstrates annual variability meaning a number of years of data is needed to understand blue whale distribution and habitat use at Scott Reef. Given inter-annual variability and population growth, Scott Reef may be a more important habitat than is recognised in the draft EIS. Taking into account the proposed duration of the project, this context is important for supporting an evaluation of impacts and risks to blue whales now and into the future and in demonstrating that the project can be managed consistent with the CMP.</p> <p>There are numerous sources of anthropogenic noise</p>		<p><i>Kimberley Sea Noise Logger Program September 2006 to June 2009 Whales, Fish and Man-Made Noise</i> (referenced as McCauley 2011 within the document (Section 5.3.2.5.2 Blue Whales). The seasonal presence of blue whales within the Browse Development Area and specifically in and around Scott Reef has been repeatedly acknowledged in the draft EIS/ERD with numerous studies referenced demonstrating this fact. It is acknowledged that additional data on the interannual and seasonal variability of pygmy blue whale abundance would contribute to a better understanding of the relative importance of the 'possible foraging area' encompassing Scott Reef however Woodside considers additional data is unlikely to fundamentally alter the impact assessment given the conservatism incorporated.</p> <p>The potential impacts on pygmy blue whales from underwater noise from wellheads (i.e. choke valves) within the Scott Reef channel was modelled and acknowledged within the draft EIS/ERD (Section 6.3.8.2.8). The model took into consideration the propagation of noise from the wellhead at the proposed drill centre locations. The assessment concluded that behavioural impacts on blue whales (i.e. exposure above the 120 dB re 1 µPa (SPL) cetacean behavioural response threshold) were possible within 500m radius of the wellhead location; however, such impacts were considered 'minor', when considering the depth of the wellheads and relative low numbers of individuals that have been recorded within the channel. The draft EIS/ERD (Section 6.3.8.4) also highlights the potential for adaptive management in the form of potentially incorporating future noise monitoring results from cetacean monitoring programs and wells outside the channel into design for those "future" wells within the channel.</p> <p>With specific reference to the pile driving results demonstrated in the draft EIS/ERD Section 6.3.8.2.3, the results demonstrate the outcomes of the noise propagation model as sound exposure levels over a 24-hour period (SEL_{24h}). However, the radii that correspond to SEL_{24h} generally represent an unlikely worst-case scenario for SEL-based exposure, given that individuals are unlikely to</p>

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	<p>from the project, some are shorter term inputs to the marine soundscape while others (such as the operation of the FPSO and choke noise from wellheads) represent a more chronic input to the marine soundscape at Scott Reef. In the context of low frequency cetaceans, modelling study results indicate:</p> <p>Choke noise modelling (2 transects) did not consider transmission of sound perpendicular to the chosen transect along the deeper water of the channel. Based on the proposed location of the well heads and the presented modelling outputs there is the possibility for behavioural disturbance in blue whales within the narrow corridor of the Scott Reef channel where they have been observed and acoustically detected. This matter has been inadequately recognised and evaluated in the EIS / ERD.</p> <p>The potential for: behavioural disturbance from vessel activities out to 10.5 km (MODU), 2.25 km (OSV), 8.77 km (FPSO with DP), 0.57 km (FPSO without DP) and 8.89 km (FPSO offtake) within the PBW foraging BIA.</p> <p>TTS in marine mammals at distances of 1.69 km for VSP, and 1.6 km from FPSO offtake activities.</p> <p>PTS and TTS for marine mammals from pile driving activities to extend to 5.35 km and 29.46 km respectively for low frequency cetaceans based on one pile being hammered per day. Given these ranges appear to be beyond what proposed controls can effectively mitigate, the EIS/ERD does not demonstrate that it is possible to manage project activities to not be inconsistent with the CMP.</p> <p>Based on ANIMAT modelling, 1.65 and 1.64 (3.39%) animals are predicted to experience TTS within the migratory and foraging areas respectively. This modelling is considered to be a more realistic tool for assessing potential impacts on animals as it incorporates the movement patterns of animals, resulting in a prediction of realistic exposures that generally decreases the modelled range to potential impacts. A 2 km exclusion zone has been applied in the modelling which discounts any animals within 2 km of the sound source. Despite this, blue whales within the foraging and migratory BIAs are</p>	<p>stay in the same location or range for an extended period. Given the proportion of the total population predicted to be temporarily impacted (TTS) following the application of the proposed controls, the outcome is considered to be not inconsistent with the long-term recovery objective of the CMP "...to minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list." The impact assessment and outcomes predicted are also not inconsistent with the interim recovery objectives, including assessment using cost-effective and robust methodologies and anthropogenic threats being demonstrably minimized (including generally through adaptive management regimes).</p> <p>With reference to FPSO offtake and FPSO with thrusters scenario – both scenarios have been modelled and describe areas with potential for behavioural disturbance associated with the FPSO using 5MW of thrust. However, this is not considered to be representative of FPSO thruster use during the majority of the time. For clarity, the Supplement Report will provide additional context as to the anticipated use of thrusters on the FPSO and the potential for behavioural impact.</p> <p>The impact assessment for piling presented within the draft EIS/ERD (Section 6.3.8.2.3) demonstrates that with the proposed 2 km exclusion zone in place, no PTS (injury) is predicted for blue whales; however, some TTS and behavioural responses were predicted to a small number of individuals (<2). It is acknowledged that this prediction is made on the assumption that the exclusion zone is 100% effective. Modelling without the exclusion zone in place has also been undertaken and is presented in the Browse Project Noise Modelling Study (draft EIS/ERD Chapter 10, Appendix D3). Table 31 of this report demonstrates that with the exclusions zones not considered are included, the number of individuals predicted to be physically impacted (PTS) increases from zero individuals to 0.02 (migrating BIA) and 0.06 (foraging area) for the larger hammer (S-1200). Similarly, the number of individuals predicted to be impacted by TTS increases from 1.64 to 1.75 within the</p>

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	<p>still predicted to experience temporary injury outside the 2 km exclusion zone. By excluding all animals within 2 km of the sound source, the modelling methods assume that the exclusion zone will be 100% effective in mitigating noise impacts and consequently may underestimate the number of whales that could experience injury from the activity.</p> <p>Given the points above (i.e. potential for injury and behavioural disturbance within the foraging BIA) the EIS/ERD does not demonstrate that the impacts from noise generating activities of the proposed project can be managed such that they will not be inconsistent with the CMP.</p> <p>Aspect – Vessel interactions With respect to vessel operations, there is a commitment to only travel 6 knots in the Scott Reef channel and a maximum 30 knots in sensitive areas at sensitive times. The acceptability evaluation in relation to vessel disturbance is underpinned by the low observation rates of pygmy blue whales during WEL's surveys leading to conclusions that they are not likely to be encountered (p.591) and that the FCT vessel can slow down rapidly. However, given the dive patterns of pygmy blue whales and their size, it is possible for a whale to be very close to the surface before being visible to the eye. It is unclear based on the risk evaluation how the level of vessel activity can be managed to adequately address the threat of vessel interactions with blue whales.</p> <p>Cumulative impacts Based on the specific threats and actions identified in the CMP for Blue Whales, the nature and scale of the project including its associated noise emissions and vessel traffic in a sensitive area, it is not clear how the project (including all different potential impacts) is proposed to be managed to be not inconsistent with the CMP.</p> <p>In addition, the CMP for Blue Whales states that "<i>the cumulative impacts of listed threats should also be considered</i>" and it is unclear that the full extent and</p>	<p>possible foraging area and from 1.22 to 1.44 individuals for behavioural response within the migrating BIA, with exclusions zone not implemented. The results demonstrate that while the exclusions zone mitigate impacts, the low number of individuals predicted to be impacted is largely a factor of their predicted densities within the project area and the ranges of the noise emissions. It is considered that both scenarios (with or without exclusion zone) do not represent significant impacts on pygmy blue whale populations and the assessment is not inconsistent with the objectives of and related actions in the CMP.</p> <p>Aspect – Vessel interactions: It is acknowledged that the implementation of visual observation controls has some limitations. However, as described in the draft EIS/ERD (Section 6.3.18) an ongoing adaptive management approach will be taken to select appropriate additional control measures to specifically manage vessel strike risk for an FCTV, within sensitive areas at sensitive times. The management approach will give preference to additional engineering control measures (i.e. detection controls) before considering speed restrictions and will focus on emerging technologies, such as detection controls including front-of-bow detection (PAM, thermal IR, radar, sonar), aerial/satellite detection, consistent with the National Strategy for Mitigating Vessel Strike of Marine Mega-fauna. The FCTV will operate under an FCTV Management strategy (to be detailed in subsequent Environment Plans as required), which will describe the appropriate additional control measures to manage vessel strike risk.</p> <p>Cumulative impacts: It is acknowledged that there will potentially be cumulative impacts on pygmy blue whales as a result of the proposed project activities. However, given the nature and scale of these impacts (as described within the draft EIS/ERD) and the likely numbers of individuals that could potentially be impacted, such cumulative impacts would not be deemed 'significant' (as defined within the EPBC Act Significant Impacts Guidelines and criteria for Endangered species) and are not inconsistent with the long-term and related</p>

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	<p>severity of impacts and risks has been considered. For example, there is the potential for the project to impact blue whales directly through noise emissions and vessel traffic, and indirectly through impacts to krill availability and climate change. Climate change may result in additional pressures including changing blue whale migratory ranges, changes to the availability and fecundity of krill (through ocean acidification, changes in ocean dynamics, changes in sea temperature), as well as potential impacts of light spill on krill distribution. Given the suite of pressures on the blue whale population including the declining krill abundance as a result of krill fisheries in the southern feeding grounds (identified in the CMP), the draft EIS does not discuss in sufficient detail the possibility that transitory feeding grounds such as that at Scott Reef will be increasingly important to sustaining a growing population.</p>	<p>interim objectives and actions of the CMP “...to minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list.”.</p> <p>It is noted that the CMP describes direct and indirect pressures on the blue whale population and the link to the direct pressures as documented in the CMP for pygmy blue whales are addressed in the draft EIS/ERD (refer to Section 6.3.8 Underwater noise and Section 6.3.18 Vessel Interactions with Fauna). It is further noted that the indirect pressure of declining krill abundance due to krill fisheries occurs in the southern feeding grounds of the Antarctic blue whale and not the Eastern Indian Ocean pygmy blue whale population.</p>
Turtles	<p>Marine turtles</p> <p>Context: Scott Reef and Browse Island are considered ‘Major’ important nesting areas for green turtles. The ‘Recovery Plan for Marine Turtles in Australia 2017-2027’ (Commonwealth of Australia, 2017) establishes the following recovery actions: Manage anthropogenic activities to ensure marine turtles are not displaced from identified habitat critical to the survival as per section 3.3 Table 6. (Action area A1) Manage anthropogenic activities in Biologically Important Areas to ensure that biologically important behaviour can continue. (Action area A1) Artificial light within or adjacent to habitat critical to the survival of marine turtles will be managed such that marine turtles are not displaced from these habitats.</p> <p>The recovery plan also estimates the Scott Reef green turtle population to be between 1,000 and 5,000 individuals (nesting on Sandy Islet) with an average re-migration interval of 3-5years. Average internesting interval is 10 days based on satellite tracking (EIS p139). There is limited data available on hatching success and hatchling success / emergence.</p>	<p>WEL should provide clearer, logical and robust impact and risk evaluation that acknowledges the importance of Scott Reef to marine turtles.</p> <p>The EIA should demonstrate the impacts and the risks of the activity both in isolation and cumulatively (across multiple impact pathways).</p> <p>The EIA and objectives will need to be reviewed to demonstrate consistency with the requirements of the Recovery plan, including that: marine turtles are not displaced from identified habitat critical to the survival; and that biologically important behaviour can continue. WEL will need to demonstrate through the impact analysis</p> <p>Context: The importance of Sandy Islet for the Scott Reef – Browse Island green turtle genetic stock has been acknowledged and noted within the draft EIS/ERD (Section 5.2.3.6.1) and the impact assessment has been undertaken in consideration of the isolation and importance of this nesting habitat for the Scott Reef – Browse Island genetic stock.</p> <p>The draft EIS/ERD commits to updating existing turtle data by targeted monitoring programs to verify the conservative impact predictions at relevant times throughout the proposed Browse Project life cycle. High level description of scope and objectives of the monitoring program(s) will be included in the Supplement Report.</p>

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	<p>The relevant threats to Scott Reef green turtle stock according to the recovery plan include: Climate change and variability Chemical and terrestrial discharge Habitat modification - infrastructure / coastal development.</p> <p>The evaluation of impacts to marine turtles presented in the EIS / ERD does not adequately recognise the absence of alternative nesting habitat for the Scott Reef green turtle stock and the relative significant of Sandy Islet for the survival of this stock.</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p> <p>There appears to be a high degree of uncertainty in the predictions of impacts to the Browse Island turtle nesting stock and Scott reef foraging populations and the implications of these impacts for population maintenance and recovery. Some of the matters that lead to uncertainty and present challenges in demonstrating that the project is able to be managed in a manner that is not inconsistent with the recovery plan are outlined below.</p> <p>Aspect: light</p> <p>Light modelling used to inform the light emission predictions for the draft EIS was the Jacobs Report 2014 prepared for Browse FLNG and ERM 2010 report prepared for Browse Upstream LNG Development. Modelling was undertaken to determine illuminance values measured in lux at pre-determined distances from an FLNG facility and proposed TRE drill centre. Since these modelling studies were undertaken, there is additional important context relevant for informing the acceptability of impacts on marine turtle populations, in particular the Recovery Plan for Marine Turtles in Australia 2017-2027 and National Light Pollution Guidelines for Wildlife Including marine turtles, seabirds and migratory shorebirds (2020). These documents set</p>	<p>that the proposed action is not inconsistent with the recovery plan including those points outlined above.</p> <p>In order to respond to the issues identified to date, WEL could consider committing to further studies and monitoring. This could include ongoing monitoring of population viability / trends (e.g. nesting success, hatching success, and emergence success) which may require additional collection of baseline data and will require rigorous scientific design.</p> <p>Aspect – light: It is noted that since the light modelling studies were undertaken for the previous Browse concept (for which drilling activities closest to Sandy Islet are the same) and since the submission of the draft EIS/ERD, there has been additional context regarding impacts to turtles, and in particular the final National Light Pollution Guidelines for Wildlife (January 2020). The guidelines are intended to be read in conjunction with the other guidance, including the EPBC Significant Impact Guidelines and Recovery Plans.</p> <p>Anticipated activities within the 20km buffer are described in the draft EIS/ERD (Section 6.3.8.1) and include the following:</p> <p>Drilling and completion and installation activities:</p>

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	<p>out specific considerations that are applicable to evaluating potential impacts to marine turtles from artificial light attributed to the Browse project.</p> <p>There are a number of limitations of the light modelling studies that affect the reliability of modelling results for informing the environmental impact assessment presented in section 6 (chapter 1). In addition, there are inadequacies in the evaluation of light impacts that collectively lead to uncertainty as to whether the project can demonstrate that impacts will not be inconsistent with the Marine Turtle Recovery Plan. Examples include:</p> <ul style="list-style-type: none"> • Modelling studies have not predicted the light attenuation / received levels from flaring associated with the Torosa FPSO. On the basis that flaring will be required during start-up / commissioning until steady state (FPSO), and given the uncertainty on the duration and intensity of flaring during commissioning, the absence of modelling to predict received levels at Sandy Islet and surrounding waters is considered an important omission of the EIA. • The draft EIS / ERD does not appear to include an assessment of light glow impacts on both nesting turtles and emerging hatchlings. While light glow is largely variable and is complex to predict, compounded by scattering of light by airborne particles, it is an important impact pathway that needs to be evaluated in order to understand the potential for, and severity of, impacts to the nesting population and hatchlings. According to the National Light Pollution Guidelines the recommended 20 km buffer for evaluating impacts on important turtle habitat is based on sky glow approximately 15 km from a nesting beach affecting flatback hatchling behaviour and light from an aluminium refinery 	<ul style="list-style-type: none"> • drilling and completions • subsurface evaluation using well bore seismic techniques including VSP • piling to secure mooring lines for the MODU, SURF installations • MODU and project vessels DP • seabed preparation • vessels movements (including ROV) • helicopters movements <p>Commissioning and operational activities:</p> <ul style="list-style-type: none"> • subsurface evaluation using well bore seismic techniques including VSP • subsea infrastructure operation • support vessel • vessels movements (including ROV) • helicopters movements • IMR activities. <p>Decommissioning:</p> <ul style="list-style-type: none"> • project vessels DP • vessel movements • helicopter movements • infrastructure removal. <p>The proposed location of the Torosa FPSO is not within the habitat critical to survival for green and hawksbill turtles, as it is 26 km from Sandy Islet and outside of the recommended 20 km buffer recommended in the National Light Pollution Guidelines.</p> <p>An update of the light impact assessment taking into account the recent National Light Pollution Guidelines for Wildlife (2020) will be undertaken.</p> <p>As noted in the draft EIS/ERD (Section 6.3.3.2), there will be no continuous flaring during normal operations at either FPSO location, with the exception of pilot gas and</p>

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		<p>disrupting turtle orientation 18 km away which is important in the context of predicting the effects of light glow on hatchlings.</p> <ul style="list-style-type: none"> The Torosa FPSO is located within a habitat critical to survival for green and hawksbill turtles. The EIA states that most of north Scott Reef would experience sea level of brightness in the order of 0.005 to 0.035 lux. However, the evaluation does not appear to predict the received levels of light at Sandy Islet in biologically relevant wavelengths (i.e. those from UV-yellow) and discuss the potential implications for marine turtles exposed to these levels of light using relevant scientific literature. Within 12km of the FPSO there is potential for light to be received at levels that may impact in-water life stages of marine turtles for a 40 year duration. This represents the potential behavioural disturbance footprint (approx. 450km² of habitat critical at Scott Reef from the FPSO alone). The magnitude of this potential impact and the potential consequences for hatchlings and foraging marine turtles does not appear to be evaluated in the context of demonstrating that biologically important behaviour can continue across the area of potential impact. The EIA provided does not predict the received levels of light at Sandy Islet (in biologically relevant wavelengths and intensities) from <u>cumulative light</u> sources related to the proposed action (including the construction phase) and compare these levels to biologically relevant impact thresholds document in published literature. There is limited information on the light mitigation / 	<p>compressor seal gas. Short-term flaring will occur during, commissioning, start-ups and shutdowns or in emergency events. It is acknowledged that light attenuation/received levels from flaring associated with the FPSO was not presented in the draft EIS/ERD. Notwithstanding the commitment to not undertake continuous flaring (with the exception of pilot gas and compressor seal gas), the line of sight assessment (draft EIS/ERD Section 6.3.3.3) incorporated flaring activities (to model emergency flaring). The result demonstrated that flaring from the Torosa FPSO would be visible at Scott Reef (including Sandy Islet approximately 26km from the FPSO).</p> <p>As described in the draft EIS/ERD, natural gas flares have previously been measured to have a peak spectral signature in the invisible infrared range (750 to 900 nm), with lower levels of light emitted in the range visible to turtles (Pendoley, 2000¹; Pendoley Environmental, 2012²). However, the peak light wavelength from natural gas flares is not in the UV-blue region of the visible spectrum which, as described in the National Light Pollution Guidelines, is considered the most disruptive to wildlife in general.</p>

¹ Pendoley, K., 2000. The Influence of Gas Flares on the Orientation of Green Turtle Hatchlings at Thevenard Island, Western Australia. Presented at the Second ASEAN Symposium and Workshop on Sea Turtle Biology and Conservation, ASEAN Academic Press, Kota Kinabalu, pp. 130–142.

² Pendoley Environmental, 2012. Arrow LNG Plant, Marine Ecology (Turtles) Technical Study, Curtis Island Baseline Light Monitoring 2012. Prepared by Pendoley Environmental for Coffey Environments, 9 November 2012. 65 pp.

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	<p>management measures that are proposed to apply to the drilling, construction and operational phases of the project. There are limited commitments to the application of mitigation hierarchy including the adoption of specific light management measures and it is unclear what best practice lighting design features (outlined in the National Light Pollution Guidelines for Wildlife) are proposed to be adopted to minimise artificial light impacts.</p> <ul style="list-style-type: none"> • There is limited information on the impact verification and monitoring studies that will be implemented to verify that the project has been able to meet environmental objective(s) for marine turtles and that artificial light has not resulted in impacts inconsistent with the recovery plan. <p>Aspect: Noise</p> <p>Noise modelling indicates that there is potential for marine turtles to be injured within 250m of the pile driving activities and experience TTS within a 5km radius from the source with behavioural disturbance thresholds reached beyond 5km (Tables 58 and 59 Chapter 10 D.3). In addition, there is potential for TTS thresholds to be exceeded during drilling activities and during operational activities of the FPSO should DP be utilised.</p> <p>The marine turtle recovery plan requires the management of anthropogenic activities to ensure marine turtles are not displaced from identified habitat critical to their survival. However, the EIS / ERD does not make a robust case for how noise generating activities of the project will be managed such that turtles are not displaced from habitat critical to survival. This is particularly the case for pile driving activities which have potential to displace turtles over a substantial area of habitat critical (i.e. the Torosa FPSO anchor piling location).</p>	

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	<p>While it is acknowledged that ANIMAT modelling has been undertaken to estimate the number of turtles exposed to noise during various stages of the project, the reliability and plausibility of ANIMAT modelling outputs is largely contingent on understanding animal distribution, abundance and behaviour. The data for Scott Reef green turtle nesting and resident / foraging populations is limited, generating uncertainty for impact assessment and for drawing conclusions relative to recovery plan requirements.</p> <p>Aspect: Subsidence</p> <p>The draft EIS / ERD predicts that production activities through the extraction of naturally high-pressured reservoir fluids, will cause a reduction in the reservoir's pressure, which has the potential to result in the compaction of the geological layers overlying the reservoir leading to potential gradual subsidence (sinking) of the seabed within the field location.</p> <p>It is estimated for the proposed Browse to NWS Project that the vertical seafloor movement predicted to be in a range between 2.6 – 8.9 cm) over 40 years based on modelling. The EIS / ERD states that the subsidence assessment is <i>'based on the peer reviewed modelling results described above with a maximum subsidence of less than 10 cm over field life'</i>.</p> <p>According to the Recovery Plan for Marine Turtles, the Scott Reef green turtle stock is considered to be restricted in its capacity to expand into other nesting areas in the event that nesting beaches are lost or sand temperatures increase as a result of climate change.</p> <p>The draft EIS/ ERD has not made a robust case for why the potential reduction in the height of Sandy Islet by ~10 cm will not modify habitat critical to survival, or that resulting impacts for marine turtles are not inconsistent with the recovery plan. This evaluation needs to take into</p>	<p>Aspect – noise:</p> <p>It is acknowledged that the sound exposure modelling indicates that PTS and TTS is predicted to occur in marine turtles within 250m and 5km of proposed pile driving activities. However, it should be noted that this predicts the outcome without the implementation of any controls or mitigation measures. It should also be noted that the impact ranges are based on the cumulative SEL_{24h}; therefore, PTS would only occur if individuals remained stationary within these ranges for the duration of piling at the depth of the loudest received level, without consideration of the turtle's behaviour or movement, which is highly unlikely to occur.</p> <p>In order to better predict the likely impact on individual turtles, ANIMAT modelling (incorporating the predicted density, movement and behaviour of individuals) was undertaken. This modelling was particularly conservative, utilizing the upper limit of predicted abundance within the Recovery Plan (5,000), as well as assuming an equal distribution of individuals within the model area. It is acknowledged that there is limited contemporary information on the population dynamics of these turtles and that further information from any future additional studies and monitoring would further refine the modelled outputs and impact assessment outcomes.</p> <p>The modelling demonstrates that given the conservatively assumed densities, behaviour and sound exposure range it is not credible that any green turtle (interbreeding or</p>

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	<p>account the following factors: The genetically isolated / distinct nesting stock with limited / no alternative nesting habitat should modification result in reduction or removal of suitable nesting habitat The areal extent of reduced suitable habitat for nesting turtles and the implications for nesting success / re-productive success noting that there is a high density of nesting already taking place (Guinea, 2009). Why a reduction in any habitat that is classified as 'habitat critical to survival' is not inconsistent with the recovery plan when the recovery plan requires: Minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list.</p> <p>In addition, the draft EIS / ERD does not provide an adaptive management framework that is able to demonstrate that action can be taken to remedy impacts in the event that any subsidence-related effects are greater than anticipated resulting in significant modifications and the loss of habitat critical to the survival of the Scott Reef green turtle population.</p> <p><u>Cumulative impacts</u></p> <p>The project represents a large scale, multiple activity project, parts of which are located in areas identified as habitat critical to survival for marine turtles.</p> <p>While table 9-11 (ch9) provides a discussion on cumulative impacts to marine turtles, the statement <i>'impacts from these aspects on marine turtles are not predicted to be significant and it is considered that they can be managed to an acceptable level through the implementation of mitigation measures'</i> is not substantiated because: It does not appear that the precautionary principle has been adequately applied taking into account the duration of the project, its location in habitat critical, relative significance of Scott Reef for green turtles and the levels</p>	<p>migrating) would be exposed to levels associated with injury (PTS) (Table 6 20 and Figure 6 22 of the EIS). Accordingly, the modelling demonstrates no turtles within the Scott Reef (Sandy Islet) 20 km habitat critical interesting buffer area would be exposed to received levels associated with injury, with only the larger IHC S-1200 hammer exceeding the behavioural response (166 dB) threshold within the Scott Reef (Sandy Islet) 20 km habitat critical interesting buffer area (17 m shallow penetration depth).</p> <p>Relevant literature indicates that green turtles are highly unlikely to exceed depths greater than 40 m during interesting (Hays et al., 2000; Guinea, 2010) and therefore, an assessment against the Scott Reef 50 m contour interesting area, demonstrates that received sound levels that could cause behavioural responses in turtles are not exceeded within this area with no animals exposed.</p> <p>Aspect – subsidence: As detailed under Item 1, the proposed environmental objectives outlined in the draft EIS/ERD (Section 6.2.3.5) will be further clarified (where appropriate) within the Supplement Report.</p> <p>The draft EIS/ERD commits to a verification monitoring for seabed subsidence program. Further details will be provided in the Supplement Report.</p>

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319			
	<p>of uncertainty in the predictions of impacts from light, subsidence and underwater noise impacts.</p> <p>It is not yet clear that there will be relevant biological and impact monitoring programs in place that are able to detect changes attributed to the project and inform management response</p> <p>The EIS / ERD does not make firm commitments to specific adaptive management measures that can be implemented in the event that measured impacts are confirmed to be unacceptable/ inconsistent with the marine turtle recovery plan.</p> <p>The majority of effective mitigation measures, including consideration of avoidance and lighting design measures, need to take place at the early design / engineering phases of the project.</p>		
Sea birds	<p>Context: Migratory Seabirds – Section 6.3.3.4 p. 341 acknowledges the potential for light to disrupt the magnetic compass of migrating birds and offshore facilities to disrupt migration by attracting birds either directly as a result of light emissions or indirectly as a result of light attracting other sources of prey.</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p> <p>The impact assessment provides an overview of the East Asian Australasian flyway overlap with the Browse project area. It concludes that there is unlikely to be an impact as there is no significant nesting or roosting areas nearby. This assessment is disjointed and appears to overlook the potential impact of the project infrastructure on migrating seabirds/shorebirds utilising the East Asian Australasian flyway and the potential for disruption to migration. It is acknowledged that the red wavelength of light is most likely to disrupt the magnetic compass and the wavelengths of light from MODU fall below this. However it is also stated that the blue green wavelengths of light are important for magnetic compass orientation and this is not considered in enough detail.</p>	<p>WEL should consider providing further information on proposed mitigation and management measures, including demonstrating how proposed controls will ensure an acceptable level of impact to seabird populations.</p>	<p>Context: The draft EIS/ERD acknowledges the potential for impacts on migratory seabirds and shorebirds due to light-emissions from the offshore facilities. However, considering the breadth of the East Asian Australasian Flyway in the context of the highly localised extent of the potential light emissions, impacts to migratory seabirds and shorebirds are predicted to be limited with no significant impacts on species at a population level. Furthermore, light mitigation and management measures, including the potential implementation of best practice light design, consistent with the National Light Pollution Guidelines for Wildlife, will be considered during the design of the facilities.</p> <p>Therefore, it is considered that the proposed activities are not inconsistent with the objectives of the Wildlife Conservation Plan for Migratory Shorebirds, specifically the objective that “<i>Anthropogenic threats to migratory shorebirds in Australia are minimised or, where possible, eliminated</i>”.</p> <p>Woodside notes the response to Topic 1 above and confirms that environmental objectives for seabirds and migratory shorebirds will be further clarified in the Supplement Report to better align with the objectives and</p>

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319			
		This information is important in the context of Australia's obligations under the JAMBA and CAMBA.	requirements of the Wildlife Conservation Plan for Migratory Shorebirds.
3. Environmental quality of the Commonwealth marine area and Scott Reef	<p>Aspect: FPSO wastewater discharges, including Produced water (PW)</p> <p>Impacts to water quality are predicted from the discharge of produced formation water and cooling water from the FPSO facilities during the operations. According to the EIS / ERD operational discharges at the FPSO facilities will be managed to meet 99% species protection or no effect concentrations at the edge of the mixing zone and at the State waters 3 nm boundary 95% of the time (informed by based on dispersion modelling results). Based on the assessment provided in the EIS / ERD. Is it concluded that there will be no impacts from operational discharges to water quality within the Scott Reef shallow water benthic habitats (<75 m).</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p> <p>It is unclear how WEL's commitment to achieve 99% species protection at the state waters boundary around Scott Reef would ensure WA's environmental quality objectives and expectation that a maximum level of protection be afforded to state waters at Scott Reef will also be able to be achieved.</p> <p>Given uncertainties associated with wastewater discharges from the FPSO, the EIS / ERD needs to assess the impacts to the environmental quality of the area that may be affected by planned discharges and evaluate why impacts are acceptable in the context of the values of the Commonwealth marine area (rather than seeking an assessment and approval of a 'mixing zone'. This approach requires clearer presentation and discussion of the impacts and levels of protection being proposed and what this means in terms of protecting the water quality values defined under the National Water</p>	WEL should provide further information and clarification in Supplementary Report to demonstrate, with a high level of confidence, that the environmental objectives for PW and environmental quality objectives for the Commonwealth marine area, including Scott Reef can be achieved.	<p>The State ERD (Appendix B; Section 8.2.6) provides a description of the proposed levels of ecological protection (LEP) relevant to Project construction and operation activities, which in general affords a high LEP in the deep waters of the State Proposal Area where the subsea infrastructure will be located (except where designated a moderate LEP) and a maximum LEP for all other areas including the entire extent of the Scott Reef shallow water benthic communities and habitats (<75 m water depth).</p> <p>The draft EIS/ERD document presented a detailed assessment of the potential impacts from marine discharges (including produced water (PW)) based on conservatively applied maximum discharge rates which are likely to occur for only a fraction of the total field life. The assessment, based on the outcomes of extensive modelling, demonstrates the extent and fate of the key marine discharge contaminates based on established literature and ecotoxicological studies. The results of the PW modelling demonstrate that while there will be a reduction in water quality, the change will be relatively localised (approximately 1200 m from the discharge point for steady state operations (excluding start-up and shut downs etc.) based on dispersion modelling) and restricted to Commonwealth waters. The results demonstrate that the 99% species protection will be met at the State water 3 nm boundary, ensuring that the designated LEPs are achieved. The draft EIS/ERD also outlines a range of mitigation measures (e.g. containment and reprocessing of PW) that can be adopted if required.</p> <p>Furthermore, the impact assessment has assessed the potential impacts of the operational discharges on the relevant environmental receptors, including, sediments, marine fauna and benthic habitats, with a determination made on the acceptability of the impact for each receptor. The reference in the draft EIS/ERD to a 'mixing zone' has</p>

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319		
	Quality Management strategy and guidelines.	<p>been made in a descriptive context to define the boundary where the relevant threshold for 99% species protection has been achieved, as well as showing the number of dilutions as contours from the point of discharge to the defined boundary.</p> <p>The assessment of impacts has been undertaken for receptors within and outside of this mixing zone (e.g. benthic habitats at Scott Reef).</p> <p>The assessment of impacts has been undertaken considering the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018), including the application of ecotoxicological testing for key chemical constituents of concern, resulting in the derived threshold values applied to the modelling.</p> <p>The extent of the modelling, including the discharge parameters, ecological thresholds used and determination of the fate of chemical constituents is presented within draft EIS/ERD Chapter 10 D4 (RPS Marine Discharge Modelling Report).</p>
4. Risk to Scott Reef - Oil spill	<p>Context: The oil spill modelling described in the draft EIS was characterised by a number of issues which provide some indication that the modelling results were not providing sufficient inputs into an appropriate description of the environment, risk assessment, and response planning. Examples of issues identified in the preliminary adequacy-for-publication review of the draft included: emulsification thresholds for asphaltenes, minimum exposure threshold concentrations for surface, dissolved, entrained, and shoreline concentrations modelling of oil fate and behaviour in shallow-water areas. While some improvements were made in the published Draft EIS issues remain with these points.</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p>	<p>In the supplementary report WEL should consider: providing further information evaluating the consequence of an oil spill for ecological integrity of Scott Reef taking into account time to contact severity and irreversibility of impacts. updating oil spill modelling based on current scientific literature including NOPSEMA guidance on oil spill exposure threshold concentrations (incl. MDO) and ITOPF guidance on emulsification thresholds. adopting engineering controls to further reduce the likelihood FPSO grounding on Scott</p>
		<p><u>Emulsification threshold</u> Chapter 10, Technical Study D.5 provides the Browse Project Quantitative Spill Risk Assessment Report, which concludes that the Torosa condensate has low asphaltene content (0.66%), indicating a low propensity for the mixtures to take up water to form water-in-oil emulsion over the weathering cycle.</p> <p>It is noted that ITOPF lists 0.5% asphaltene content as an emulsification threshold, but this value is not referenced to any source and is not supported by the peer-reviewed literature. Fingas & Fieldhouse (2014) tested the emulsion-forming behaviour, as well as the stability of any emulsion formed, for over 400 oil types, characterising the oils by a range of chemical and rheological properties. Asphaltene content was identified by Fingas & Fieldhouse (and other researchers) as a major determinant, but not the only determinant, of the water-in-oil type that forms. Highly</p>

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319		
	<p>The EIA does not fully describe and provide a detailed evaluation of the expected fate, behaviour and ecological consequences of oil in shallow water habitats of Scott Reef.</p> <p>While the scenario of the FPSO vessel grounded on the reef has been identified in the EIS / ERD (p452), there does not appear to be consideration to further reducing the likelihood of a condensate release through adoption of engineering controls. Consideration should be given to engineering controls or evaluation of feasible alternatives such as double bottom / hull or other engineering measures that would further limit the likelihood and potential scale of a condensate spill resulting from a vessel grounding scenario.</p> <p>Addressing these issues is important to support a case for the inherent acceptability of spill risks for the project taking into account the proximity of the Torosa FPSO to Scott Reef, and the potential for a spill of this nature to impact on the values of the Scott Reef complex, key ecological features and habitats for threatened and migratory species within hours of a large scale condensate spill occurring.</p>	<p>Reef and the subsequent release of condensate.</p> <p>viscous oils will not form "stable" or "meso-stable" emulsions. Oils of low viscosity, or without significant amounts of asphaltenes and resins, will not form any water-in-oil types, and will retain less than 6% water (during significant agitation) which will be rapidly lost. Most of the oils found to form stable emulsions had asphaltene content > 5%.</p> <p>Starting oil properties that were concluded by Fingas & Fieldhouse to be indicative of "unstable" water-in-oil type are:</p> <ul style="list-style-type: none"> • Density < 0.85 or > 1.0 kg/l • Viscosity < 100 or > 800,000 cP • Asphaltene or resin content < 1.5% <p>Therefore, based on the characteristics of Stabilised Torosa Condensate and Unstabilised Torosa Condensate, the oil should not form a stable emulsion, noting the asphaltene content of 0.66%.</p> <p><u>Vessel Grounding Scenario:</u> The key controls for managing unplanned hydrocarbon releases have been provided in draft EIS/ERD Section 6.3.21.17 of the draft EIS/ERD. As the FPSOs are permanently moored, the only credible scenario for FPSO vessel grounding on Scott Reef during operations is due to an extreme weather event which causes the turret mooring system to fail. In this instance the key control mitigating this risk is the design of the mooring system, and this control is listed in the draft EIS/ERD: <i>"FPSO facilities are assessed against one in 10,000-year return period weather conditions to mitigate risk of extreme weather conditions."</i></p> <p>A double bottom hull was evaluated for the FPSOs. However, this control was not selected, as:</p> <ul style="list-style-type: none"> • In an extreme weather event whereby the mooring system fails and the FPSO is grounded, the pounding action of waves would likely penetrate a double bottom hull, releasing hydrocarbons; and, • The inclusion of a double bottom hull increases potential for safety incidents, as between approximately 0.25 - 1.0 worker-years per year more

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319			
			<p>confined space entry time would be required to undertake tank IMR in a double bottom hull.</p> <p>As a double bottom hull is unlikely to provide material risk reduction, for a scenario which is already considered to be remote, and represents an increase in HS exposure, it has not been included in the design.</p>
5. Decommissioning	Draft EIS does not provide adequate commitment in relation to the process that will be applied to the project for progressive removal of property from the title areas as it becomes disused.	WEL should consider clear commitments to progressively removing property from title areas as it becomes disused at the end of activity stages.	The draft EIS/ERD Section 3.7.8 includes details on decommissioning. Further details regarding progressive removal of infrastructure will be provided within the Supplement Report.
6. Greenhouse Gas Emissions	The Draft EIS considers avoidance, mitigation and management of Greenhouse Gas at a high level, however, the document lacks detail including: how GHG emissions have been avoided, how effective the proposed measures are, whether the measures are mitigating emissions to the greatest extent possible, whether the measures proposed are best practice what other options there are that might be considered to achieve better outcomes over the life of the project including but not limited to investigation of emerging technologies, research into better methods etc.	<p>WEL should consider providing further evidence to demonstrate that GHG emissions have been avoided, mitigated and managed to the fullest extent possible within the scope of the project.</p> <p>This should include consideration of emerging technologies and their applicability to the project and options to look at research to develop better mitigation technology over the life of the project.</p>	<p>The proposed Browse Project has been designed considering the avoidance of GHG emissions, and a list of the key emissions reduction measures has been provided in the draft EIS/ERD Section 7.7.1. Accompanying this list is an estimate of how effective the controls will be in terms of the anticipated emissions reduction has been provided. The design of the proposed Browse Project, including the proposed measures, represents best practice as:</p> <ul style="list-style-type: none"> • Figure 7-4 demonstrates that the design is highly energy efficient upstream design relative to other facilities with similar properties (i.e. reservoir CO₂ and tieback length); and, • the proposed measures include novel technologies such as the active heating flowline system and batteries, the former of which has not yet previously been implemented in Australia, and the latter of which has only been implemented once in offshore oil and gas facilities (at GWA, another Woodside operated facility). <p>A GHG Management Plan is being developed consistent with and to support the draft EIS/ERD and will be appended to the Supplement Report. The GHG Management Plan will include consideration of upstream processing emissions management in Operations, including:</p> <ul style="list-style-type: none"> • Fuel and flare analysis, baselining and forecasting throughout operational life;

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319			
			<ul style="list-style-type: none"> • Annual setting of energy efficiency improvement and flare reduction targets throughout operational life; • Ongoing optimisation of energy efficiency through periodic opportunity identification workshops/studies, evaluation and implementation.
7. Offsets	<p>Offsets are required to compensate for residual significant impacts, and are not used to make unacceptable impacts acceptable.</p> <p>No discussion of offsets is provided in the draft EIS. Where a residual significant impact occurs that is determined to be acceptable, offsets will be required to compensate for the residual impacts. The Department expects that an offset package will be developed for this project which may include Green Turtles, Pygmy Blue Whales, Greenhouse Gas Emissions and the environment of Scott Reef.</p>	<p>WEL to commit to developing an offset plan for whales, turtles, GHG and Scott Reef and should provide information in the supplement on proposed offset options.</p> <p>As stated within the EIS guidelines, any offsets proposed must consider the principles in the <i>Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (2012)</i> (among other considerations in 3.10.4 of the EIS guidelines).</p>	<p>In the meeting held on 12/2/20, we understood that it would be premature to discuss offsets prior to a full assessment (i.e. draft EIS/ERD and EIS Supplement) being undertaken.</p> <p>As stated in the draft EIS/ERD (Section 1.11), Woodside has a high level of certainty with respect to the assessment of the potential impacts and risks associated with different aspects. The conclusion of the impact assessment is that all residual impacts and risks are acceptable, and there will be no significant residual impacts to any MNES.</p> <p>As discussed previously, consistent with current legislation and policy, Woodside understands that offsets for Greenhouse Gas Emissions are managed under the Safeguard Mechanism and have included an estimate of the volume that will be required (50MT) in the draft EIS/ERD. We would welcome further discussion regarding the SGM.</p> <p>Woodside has committed to (and discussed during meetings with DAWE on 23/1/20 and 12/2/20) a range of mitigation and management measures in the draft EIS/ERD to ensure no residual significant impact on the “environment of Scott Reef” therefore consistent with established policy guidance offsets for this receptor are considered unnecessary. The application of offsets to address risks is highly unusual and unprecedented.</p> <p>The Torosa FPSO is located within a possible foraging area for pygmy blue whales. The impact assessment identifies risks and potential impacts associated with specific project activities, including the location of the Torosa FPSO, within a small proportion of the total</p>

Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319		
		distribution area of this species and specifically, the possible foraging area at Scott Reef, and concludes that the outcomes are not inconsistent with objectives and actions in the CMP.

From: s22
To: s47F s22
Cc: s47F
Subject: RE: Response to DAWE letter 24 February [SEC=OFFICIAL]
Date: Wednesday, 11 March 2020 9:05:43 AM

Hi s47F

Thanks for sending that through. Look forward to talking further this afternoon.

Cheers,

s22

Major Projects West Section
Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division
Department of Agriculture, Water and the Environment | GPO Box 787 Canberra ACT 2601 |
awe.gov.au

s22

From: s47F
Sent: Tuesday, 10 March 2020 6:34 PM
To: s22
Cc: s47F
Subject: Response to DAWE letter 24 February

Hi s22

Further to your correspondence of 24 February, please see attached Woodside's response.

We look forward to meeting with you and your colleagues tomorrow – noting that you are joining via teleconference.

Many thanks

s47F

s47F

Senior Corporate Affairs Adviser | Developments



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From: sendfile@woodside.com.au
To: s22
Subject: Welcome to Woodside Sendfile
Date: Monday, 6 July 2020 3:58:18 PM

Dear s22

Your account has been activated.

Your username is: s22

To sign in, click on the button below:

s47G(1)(a)

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To: s22
Subject: Woodside Sendfile account activation link
Date: Monday, 6 July 2020 3:48:47 PM

Dear s22

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s47G(1)(a)

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From: s22
To: s47F
Cc: s47F; s22; Gregory Manning; s22
Subject: EPBC 2018/8319 - Further advice on addressing matters identified during adequacy review [SEC=OFFICIAL]
Date: Monday, 24 February 2020 5:48:13 PM
Attachments: [Further advice on issues identified during adequacy review - Browse EIS-FRD_24022020.docx](#)
[image002.png](#)

Hi s47F

As discussed at the meeting on 12 February 2020, please find attached a table outlining further advice on addressing outstanding issues identified during the adequacy review of the EIS-ERD for the Browse to North West Shelf project.

The attached table has been prepared by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) and the Department of Agriculture, Water and the Environment (DAWE) to provide further guidance on what additional information or clarification is required to address the outstanding matters. It should be noted that in providing this guidance, DAWE and NOPSEMA have not undertaken an assessment of the EIS under the EPBC Act and draw no conclusions as to the acceptability or not of the proposed action, or the conclusions presented in the documentation by Woodside.

If you have any questions in relation to the attached, we are happy to discuss.

Cheers,

s22

Major Projects West Section
Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division
Department of Agriculture, Water and the Environment | GPO Box 787 Canberra ACT 2601 |
awe.gov.au

s22



Be Green...Read from the Screen

The Department acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures and to their elders both past and present.



EPBC 2018/8319 - Further advice on issues identified during the adequacy review of draft EIS

On 4 October 2019, the then Department of the Environment and Energy provided comments to Woodside Energy Limited (Woodside) on a draft EIS prepared for the Browse to North West Shelf project (EPBC 2018/8319).

On 29 November 2019, Woodside submitted a revised draft EIS to the Department for review. The Department found that the revised EIS substantially addressed the comments made on 4 October and was determined to be suitable for publication for public comment. However, it was noted that there remained a number of matters identified in the adequacy review that were not fully addressed.

The following table has been prepared by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) and the Department of Agriculture, Water and the Environment (DAWE) to provide further guidance on what additional information or clarification is required to address these outstanding matters. It should be noted that in providing this guidance, DAWE and NOPSEMA have not undertaken an assessment of the EIS under the EPBC Act and draw no conclusions as to the acceptability or not of the proposed action, or the conclusions presented in the documentation by Woodside. The information provided in this table represents the information required at this time to address the outstanding matters raised in the adequacy review only. Please note that DAWE and NOPSEMA may seek further information during the assessment of the final EIS.

If WEL consider that the matters within the table have been fully addressed, or somewhat addressed, WEL should specify where the information that they consider addresses the matter is presented in the draft EIS/ ERD and any further content/clarification that may be needed.



Further advice on issues identified during the adequacy check of the Draft EIS for EPBC 2018/8319		
Topic	Issue	Advice on key considerations for WEL
<p>1. Environmental objectives and evaluation to demonstrate objectives can be met</p>	<p>Context Table 6-7 provides an overview of environmental receptor sensitivity, environmental objectives and a summary of environmental context.</p> <p>Issues identified from adequacy check and initial preliminary review Proposed environmental objectives are currently high-level include ambiguous terminology and do not establish a measurable basis on which to compare predicted levels of impact and inform monitoring and adaptive management.</p> <p>The objectives set need to be measurable, achievable and specific (to the activity or aspect of the project) and the environment that may be affected. Examples of inadequacies are provided below. If the Minister were to approve the proposed action, these objectives could be the basis of outcomes-based conditions that may be attached to an approval. For further information on outcomes based conditions please refer to the Outcomes-Based conditions policy (2016) available at https://www.environment.gov.au/system/files/resources/4519549d-7496-4146-8dd4-58d55a7457cb/files/outcomes-based-conditions-policy.pdf.</p> <p>Marine reptiles Proposed objectives for marine reptiles are inadequate because:</p> <ul style="list-style-type: none"> Objective 12 is not specific to the habitats critical to survival and BIAs for marine turtle populations that utilise Sandy Islet for nesting and Scott Reef for inter-nesting and foraging. In addition, there is no measurability to the term 'substantial' so that it is clear what extent, duration and severity of habitat modification is proposed to be acceptable. Objective 13 uses the term '<i>seriously</i>' which is not defined and the objective does not specifically apply to relevant marine turtle stocks and associated life stages potentially affected. 	<p>WEL should review the environmental objectives outlined in the draft EIS to ensure that objectives are measurable, specific and achievable.</p> <p>Updated objectives should be provided in the Supplementary Report along with sufficient information to:</p> <ul style="list-style-type: none"> demonstrate clearer connection to and consistency with relevant statutory requirements. (This should include requirements of recovery plans for listed threatened species). demonstrate how the objectives are able to be met through logical, well-reasoned and scientifically supported discussion. <p>In framing up the objectives, WEL should consider the requirements outlined under section 139(1)(b) of the <i>Environment Protection and Biodiversity Act 1999</i> (EPBC Act), specifically that:</p> <p><i>'in deciding whether or not to approve for the purposes of a subsection of section 18 or section 18A the taking of an action, and what conditions to attach to such an</i></p>



	<ul style="list-style-type: none"> Objective 16 does not appear to be measurable as the information contained in the content of the EIS/ERD does not demonstrate that there is sufficient baseline data upon which to measure changes in the distribution of a population. The objectives do not capture key recovery plan requirements and do not set levels of environmental performance at levels that are clearly not inconsistent with recovery plans. Relevant recovery plan requirements include: <ul style="list-style-type: none"> Adaptively manage turtle stocks to reduce risk and build resilience to climate change and variability. Manage anthropogenic activities to ensure marine turtles are not displaced from identified habitat critical to the survival. Manage anthropogenic activities in Biologically Important Areas to ensure that biologically important behaviour can continue. <p>Marine mammals</p> <p>Proposed objectives for marine mammals are inadequate because:</p> <ul style="list-style-type: none"> Objective 12 is not specific to the BIAs for blue whales that may forage in waters off Scott Reef. In addition, the term ‘<i>substantial</i>’ is not defined or clearly measurable. It is therefore unclear what extent, duration and severity of habitat modification is proposed to be acceptable. Objective 13 refers to the term ‘<i>seriously</i>’ which is not defined and does not specifically apply to relevant marine mammal populations. Objective 15 to not have a ‘<i>substantial adverse effect on a population...or the spatial distribution of a population</i>’ is not measurable and the content of the EIS/ERD does not demonstrate access to adequate baseline data to measure whether any changes to population distribution or health have occurred. The objectives do not reflect key requirements from the Conservation Management Plan (CMP), which is a recovery plan made under the EPBC Act in effect from 3 October 2015, for blue whales or set a level of environmental performance that would ensure the project is managed in a 	<p><i>approval, the Minister must not act inconsistently with ... (b) a recovery plan or threat abatement plan. ...’.</i></p> <p>In particular, WEL need to demonstrate that the proposed action is not inconsistent with any relevant recovery plan or threat abatement plan under the EPBC Act, including, but not limited to:</p> <ul style="list-style-type: none"> Department of the Environment and Energy (2017). <i>Recovery Plan for Marine Turtles in Australia</i>. Australian Government, Canberra. Department of the Environment (2015). <i>Conservation Management Plan for the Blue Whale - A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999</i>. Canberra, ACT: Commonwealth of Australia. <p>This should include consideration of specific statements within the recovery plans; for example, recovery action tasks, priority actions and recovery objectives.</p> <p>For context, since the approval (14 August 2015) of the previous Browse FLNG assessment (EPBC 2013/7079), there is new relevant context that is important for informing the environmental impact assessment presented in the EIS. Examples include the Conservation Management Plan for the Blue Whale (2015), the Recovery Plan for Marine</p>
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	<p>manner not inconsistent with the requirements of the CMP for blue whales. Specifically:</p> <ul style="list-style-type: none"> - Manage anthropogenic noise in biologically important areas such that any blue whale can continue to utilise the area without injury, and is not displaced from a foraging area (Action Area A.2). - Ensure the risk of vessel strikes on blue whales is considered when assessing actions that increase vessel traffic in areas where blue whales occur and if required appropriate mitigation measures are implemented (Action Area A.4). - Continue to meet Australia’s International commitments to reduce greenhouse gas emissions (Action Area A.3). 	<p>Turtles in Australia (2017) and National Light Pollution Guidelines for Wildlife (Final released in January 2020 and available here: https://environment.gov.au/biodiversity/publications/national-light-pollution-guidelines-wildlife).</p>	
<p>2. Threatened species</p>	<p>a. Whales</p>	<p>Context: The pygmy blue whale (East-Indian Ocean) is a subspecies of blue whale that is listed as data-deficient on the IUCN red list, though the blue whale at the species level is listed as endangered under the EPBC Act and the definition of a species in the EPBC Act includes a sub-species therefore encompassing the pygmy blue whale under the endangered listing. The waters surrounding Scott Reef are identified in DAWE published resources as a ‘<i>possible foraging BIA</i>’ for the pygmy blue whale. Under the CMP for the Blue Whale, the requirements that apply to foraging BIAs also apply to ‘<i>possible foraging areas</i>’. The CMP for the Blue Whale identifies four key threats inhibiting the recovery of blue whales. Of these four threats, three reflect potential impacts and risks of the proposed Browse Project.</p> <ul style="list-style-type: none"> • Noise interference – specifically the impact of seismic, drilling, gas processing, and shipping noise on the ability of blue whales to find food or a mate, masking of biologically important cues, behavioural disturbance, displacement from essential resources, and the potential for injury/death. • Vessel disturbance – specifically the risk of vessel strike and the behavioural disturbance of whales from industrial, recreational and commercial activities. • Climate change and variability – specifically the impact of ocean warming on changing species ranges, ocean dynamics and the subsequent 	<p>WEL should provide clearer, logical and robust impact and risk evaluation that acknowledges the potential for blue whales to occur within the project area and the potential ongoing importance of the Scott Reef foraging BIA for the population.</p> <p>The EIA for whales should demonstrate the impacts and the risks of the activity both in isolation and cumulatively.</p> <p>The EIA and objectives will need to demonstrate consistency with the Conservation Management Plan for Blue Whale including the actions and objectives within the plan and how the proposed action is not inconsistent with the CMP for the Blue Whale and would not result in an unacceptable impact.</p> <p>In order to respond to the issues identified to date, WEL could consider committing to further studies and monitoring. This could</p>



		<p>availability of krill, as well as the impact of ocean acidification on the fecundity and sustainability of krill populations.</p> <p>In general, the outcomes of the evaluation are largely supported by the assumption that the presence of blue whales within the project area is unlikely. Given limitations associated with current data and contemporary knowledge on distribution and abundance, as well as habitat utilisation at Scott Reef, this isn't a situation that lends itself to supporting the position that the presence of blue whales in the project area is unlikely.</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p> <p>Aspect - Noise Based on the CMP for Blue Whales, the potential impacts of industrial noise are ranked as 'moderate' with climate change and variability ranked as 'high'. Oil and gas platforms are identified as a threat for displacement of blue whales in offshore waters (CMP p.27) with the associated noise impacts assessed as 'minor' and 'almost certain'. By contrast, the Draft EIS indicates the potential for noise impacts to be unlikely with a consequence of 'minor' (p.369). The conclusions of the risk assessment in the Draft EIS are based on the evaluation that "<i>low numbers of transient marine mammals within the vicinity of the noise source may occur... Given that relatively low numbers of transient marine mammals are expected to occur seasonally within the project area, only slight behavioural modifications are expected to occur with no long term effects at a species population level</i>" (p.15). Based on the evaluation provided to support this conclusion, it does not appear that the environmental impact assessment has taken into consideration important context from the CMP for Blue Whales, or the importance of the Scott Reef area as a foraging BIA for blue whales.</p> <p>Further, the outcomes and conclusions of the environmental impact assessment do not appear to be supported by modelling outputs and sufficient baseline data to justify assumptions that underlie the evaluation. For example:</p> <ul style="list-style-type: none"> • Outcomes of acoustic recording studies do not appear to have been taken into account in the draft EIS/ERD – e.g. "<i>Woodside Kimberley Sea Noise Logger Program September 2006 to June 2009 Whales, Fish and Man Made Noise</i>. Specifically the year round presence of Bryde's whales and regular 	<p>include ongoing monitoring of received levels relative to adopted impact thresholds to verify the acceptability of received levels of underwater noise to cetaceans, and targeted acoustic and tracking studies.</p> <p>Any future survey design to understand the distribution and abundance of blue whales in this habitat would need to adequately take into account inter-annual variation in blue whale habitat use and distribution so that appropriately designed to capture temporal variability at seasonal and annual timeframes.</p>
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		<p>presence of Blue Whales. Specifically between September 2008 and June 2009 (1 season) a minimum of 14 blue whales were detected singing within the Scott Reef channel. The above report also demonstrates annual variability meaning a number of years of data is needed to understand blue whale distribution and habitat use at Scott Reef. Given inter-annual variability and population growth, Scott Reef may be a more important habitat than is recognised in the draft EIS. Taking into account the proposed duration of the project, this context is important for supporting an evaluation of impacts and risks to blue whales now and into the future and in demonstrating that the project can be managed consistent with the CMP.</p> <ul style="list-style-type: none"> • There are numerous sources of anthropogenic noise from the project, some are shorter term inputs to the marine soundscape while others (such as the operation of the FPSO and choke noise from wellheads) represent a more chronic input to the marine soundscape at Scott Reef. In the context of low frequency cetaceans, modelling study results indicate: <ul style="list-style-type: none"> - Choke noise modelling (2 transects) did not consider transmission of sound perpendicular to the chosen transect along the deeper water of the channel. Based on the proposed location of the well heads and the presented modelling outputs there is the possibility for behavioural disturbance in blue whales within the narrow corridor of the Scott Reef channel where they have been observed and acoustically detected. This matter has been inadequately recognised and evaluated in the EIS / ERD. - The potential for: <ul style="list-style-type: none"> i. behavioural disturbance from vessel activities out to 10.5 km (MODU), 2.25 km (OSV), 8.77 km (FPSO with DP), 0.57 km (FPSO without DP) and 8.89 km (FPSO offtake) within the PBW foraging BIA. ii. TTS in marine mammals at distances of 1.69 km for VSP, and 1.6 km from FPSO offtake activities. iii. PTS and TTS for marine mammals from pile driving activities to extend to 5.35 km and 29.46 km respectively for low frequency cetaceans based on one pile being hammered per day. Given these ranges appear to be beyond what proposed controls can 	
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		<p>effectively mitigate, the EIS/ERD does not demonstrate that it is possible to manage project activities to not be inconsistent with the CMP.</p> <ul style="list-style-type: none"> - Based on ANIMAT modelling, 1.65 and 1.64 (3.39%) animals are predicted to experience TTS within the migratory and foraging areas respectively. This modelling is considered to be a more realistic tool for assessing potential impacts on animals as it incorporates the movement patterns of animals, resulting in a prediction of realistic exposures that generally decreases the modelled range to potential impacts. A 2 km exclusion zone has been applied in the modelling which discounts any animals within 2 km of the sound source. Despite this, blue whales within the foraging and migratory BIAs are still predicted to experience temporary injury outside the 2 km exclusion zone. By excluding all animals within 2 km of the sound source, the modelling methods assume that the exclusion zone will be 100% effective in mitigating noise impacts and consequently may underestimate the number of whales that could experience injury from the activity. <p>Given the points above (i.e. potential for injury and behavioural disturbance within the foraging BIA) the EIS/ERD does not demonstrate that that the impacts from noise generating activities of the proposed project can be managed such that they will not be inconsistent with the CMP.</p> <p>Aspect – Vessel interactions With respect to vessel operations, there is a commitment to only travel 6 knots in the Scott Reef channel and a maximum 30 knots in sensitive areas at sensitive times. The acceptability evaluation in relation to vessel disturbance is underpinned by the low observation rates of pygmy blue whales during WEL’s surveys leading to conclusions that they are not likely to be encountered (p.591) and that the FCT vessel can slow down rapidly. However, given the dive patterns of pygmy blue whales and their size, it is possible for a whale to be very close to the surface before being visible to the eye. It is unclear based on the risk evaluation how the level of vessel activity can be managed to adequately address the threat of vessel interactions with blue whales.</p>	
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		<p>Cumulative impacts Based on the specific threats and actions identified in the CMP for Blue Whales, the nature and scale of the project including its associated noise emissions and vessel traffic in a sensitive area, it is not clear how the project (including all different potential impacts) is proposed to be managed to be not inconsistent with the CMP.</p> <p>In addition, the CMP for Blue Whales states that “<i>the cumulative impacts of listed threats should also be considered</i>” and it is unclear that the full extent and severity of impacts and risks has been considered. For example, there is the potential for the project to impact blue whales directly through noise emissions and vessel traffic, and indirectly through impacts to krill availability and climate change. Climate change may result in additional pressures including changing blue whale migratory ranges, changes to the availability and fecundity of krill (through ocean acidification, changes in ocean dynamics, changes in sea temperature), as well as potential impacts of light spill on krill distribution. Given the suite of pressures on the blue whale population including the declining krill abundance as a result of krill fisheries in the southern feeding grounds (identified in the CMP), the draft EIS does not discuss in sufficient detail the possibility that transitory feeding grounds such as that at Scott Reef will be increasingly important to sustaining a growing population.</p>	
	<p>b. Turtles</p>	<p><u>Marine turtles</u></p> <p>Context: Scott Reef and Browse Island are considered ‘Major’ important nesting areas for green turtles. The ‘Recovery Plan for Marine Turtles in Australia 2017-2027’ (Commonwealth of Australia, 2017) establishes the following recovery actions:</p> <ul style="list-style-type: none"> - Manage anthropogenic activities to ensure marine turtles are not displaced from identified habitat critical to the survival as per section 3.3 Table 6. (Action area A1) - Manage anthropogenic activities in Biologically Important Areas to ensure that biologically important behaviour can continue. (Action area A1) - Artificial light within or adjacent to habitat critical to the survival of marine turtles will be managed such that marine turtles are not displaced from these habitats. <p>The recovery plan also estimates the Scott Reef green turtle population to be between 1,000 and 5,000 individuals (nesting on Sandy Islet) with an average re-</p>	<p>WEL should provide clearer, logical and robust impact and risk evaluation that acknowledges the importance of Scott Reef to marine turtles.</p> <p>The EIA should demonstrate the impacts and the risks of the activity both in isolation and cumulatively (across multiple impact pathways).</p> <p>The EIA and objectives will need to be reviewed to demonstrate consistency with the requirements of the Recovery plan, including that:</p>



	<p>migration interval of 3-5years. Average interesting interval is 10 days based on satellite tracking (EIS p139). There is limited data available on hatching success and hatchling success / emergence.</p> <p>The relevant threats to Scott Reef green turtle stock according to the recovery plan include:</p> <ul style="list-style-type: none"> - Climate change and variability - Chemical and terrestrial discharge - Habitat modification - infrastructure / coastal development. <p>The evaluation of impacts to marine turtles presented in the EIS / ERD does not adequately recognise the absence of alternative nesting habitat for the Scott Reef green turtle stock and the relative significant of Sandy Islet for the survival of this stock.</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p> <p>There appears to be a high degree of uncertainty in the predictions of impacts to the Browse Island turtle nesting stock and Scott reef foraging populations and the implications of these impacts for population maintenance and recovery. Some of the matters that lead to uncertainty and present challenges in demonstrating that the project is able to be managed in a manner that is not inconsistent with the recovery plan are outlined below.</p> <p>Aspect: light</p> <p>Light modelling used to inform the light emission predictions for the draft EIS was the Jacobs Report 2014 prepared for Browse FLNG and ERM 2010 report prepared for Browse Upstream LNG Development. Modelling was undertaken to determine illuminance values measured in lux at pre-determined distances from an FLNG facility and proposed TRE drill centre. Since these modelling studies were undertaken, there is additional important context relevant for informing the acceptability of impacts on marine turtle populations, in particular the Recovery Plan for Marine Turtles in Australia 2017-2027 and National Light Pollution Guidelines for Wildlife Including marine turtles, seabirds and migratory shorebirds (2020). These documents set out specific considerations that are applicable to evaluating potential impacts to marine turtles from artificial light attributed to the Browse project.</p>	<ul style="list-style-type: none"> • marine turtles are not displaced from identified habitat critical to the survival; and • that biologically important behaviour can continue. <p>WEL will need to demonstrate through the impact analysis that the proposed action is not inconsistent with the recovery plan including those points outlined above.</p> <p>In order to respond to the issues identified to date, WEL could consider committing to further studies and monitoring. This could include ongoing monitoring of population viability / trends (e.g. nesting success, hatching success, and emergence success) which may require additional collection of baseline data and will require rigorous scientific design.</p>
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		<p>There are a number of limitations of the light modelling studies that affect the reliability of modelling results for informing the environmental impact assessment presented in section 6 (chapter 1). In addition, there are inadequacies in the evaluation of light impacts that collectively lead to uncertainty as to whether the project can demonstrate that impacts will not be inconsistent with the Marine Turtle Recovery Plan. Examples include:</p> <ul style="list-style-type: none">• Modelling studies have not predicted the light attenuation / received levels from flaring associated with the Torosa FPSO. On the basis that flaring will be required during start-up / commissioning until steady state (FPSO), and given the uncertainty on the duration and intensity of flaring during commissioning, the absence of modelling to predict received levels at Sandy Islet and surrounding waters is considered an important omission of the EIA.• The draft EIS / ERD does not appear to include an assessment of light glow impacts on both nesting turtles and emerging hatchlings. While light glow is largely variable and is complex to predict, compounded by scattering of light by airborne particles, it is an important impact pathway that needs to be evaluated in order to understand the potential for, and severity of, impacts to the nesting population and hatchlings. According the National Light Pollution Guidelines the recommended 20 km buffer for evaluating impacts on important turtle habitat is based on sky glow approximately 15 km from a nesting beach affecting flatback hatchling behaviour and light from an aluminium refinery disrupting turtle orientation 18 km away which is important in the context of predicting the effects of light glow on hatchlings.• The Torosa FPSO is located within a habitat critical to survival for green and hawksbill turtles. The EIA states that most of north Scott Reef would experience sea level of brightness in the order of 0.005 to 0.035 lux. However, the evaluation does not appear to predict the received levels of light at Sandy Islet in biologically relevant wavelengths (i.e. those from UV-yellow) and discuss the potential implications for marine turtles exposed to these levels of light using relevant scientific literature.• Within 12km of the FPSO there is potential for light to be received at levels that may impact in-water life stages of marine turtles for a 40 year duration. This represents the potential behavioural disturbance footprint (approx. 450km² of	
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		<p>habitat critical at Scott Reef from the FPSO alone). The magnitude of this potential impact and the potential consequences for hatchlings and foraging marine turtles does not appear to be evaluated in the context of demonstrating that biologically important behaviour can continue across the area of potential impact.</p> <ul style="list-style-type: none"> • The EIA provided does not predict the received levels of light at Sandy Islet (in biologically relevant wavelengths and intensities) from <u>cumulative light</u> sources related to the proposed action (including the construction phase) and compare these levels to biologically relevant impact thresholds document in published literature. • There is limited information on the light mitigation / management measures that are proposed to apply to the drilling, construction and operational phases of the project. There are limited commitments to the application of mitigation hierarchy including the adoption of specific light management measures and it is unclear what best practice lighting design features (outlined in the National Light Pollution Guidelines for Wildlife) are proposed to be adopted to minimise artificial light impacts. • There is limited information on the impact verification and monitoring studies that will be implemented to verify that the project has been able to meet environmental objective(s) for marine turtles and that artificial light has not resulted in impacts inconsistent with the recovery plan. <p>Aspect: Noise</p> <p>Noise modelling indicates that there is potential for marine turtles to be injured within 250m of the pile driving activities and experience TTS within a 5km radius from the source with behavioural disturbance thresholds reached beyond 5km (Tables 58 and 59 Chapter 10 D.3). In addition, there is potential for TTS thresholds to be exceeded during drilling activities and during operational activities of the FPSO should DP be utilised.</p> <p>The marine turtle recovery plan requires the management of anthropogenic activities to ensure marine turtles are not displaced from identified habitat critical to their survival. However, the EIS / ERD does not make a robust case for how noise generating activities of the project will be managed such that turtles are not displaced from habitat critical to survival. This is particularly the case for pile driving activities</p>	
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	<p>which have potential to displace turtles over a substantial area of habitat critical (i.e. the Torosa FPSO anchor piling location).</p> <p>While it is acknowledged that ANIMAT modelling has been undertaken to estimate the number of turtles exposed to noise during various stages of the project, the reliability and plausibility of ANIMAT modelling outputs is largely contingent on understanding animal distribution, abundance and behaviour. The data for Scott Reef green turtle nesting and resident / foraging populations is limited, generating uncertainty for impact assessment and for drawing conclusions relative to recovery plan requirements.</p> <p>Aspect: Subsidence</p> <p>The draft EIS / ERD predicts that production activities through the extraction of naturally high-pressured reservoir fluids, will cause a reduction in the reservoir’s pressure, which has the potential to result in the compaction of the geological layers overlying the reservoir leading to potential gradual subsidence (sinking) of the seabed within the field location.</p> <p>It is estimated for the proposed Browse to NWS Project that the vertical seafloor movement predicted to be in a range between 2.6 – 8.9 cm) over 40 years based on modelling. The EIS / ERD states that the subsidence assessment is <i>‘based on the peer reviewed modelling results described above with a maximum subsidence of less than 10 cm over field life’</i>.</p> <p>According to the Recovery Plan for Marine Turtles, the Scott Reef green turtle stock is considered to be restricted in its capacity to expand into other nesting areas in the event that nesting beaches are lost or sand temperatures increase as a result of climate change.</p> <p>The draft EIS/ ERD has not made a robust case for why the potential reduction in the height of Sandy Islet by ~10 cm will not modify habitat critical to survival, or that resulting impacts for marine turtles are not inconsistent with the recovery plan. This evaluation needs to take into account the following factors:</p>	
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		<ul style="list-style-type: none"> • The genetically isolated / distinct nesting stock with limited / no alternative nesting habitat should modification result in reduction or removal of suitable nesting habitat • The areal extent of reduced suitable habitat for nesting turtles and the implications for nesting success / re-productive success noting that there is a high density of nesting already taking place (Guinea, 2009). • Why a reduction in any habitat that is classified as ‘habitat critical to survival’ is not inconsistent with the recovery plan when the recovery plan requires: <ul style="list-style-type: none"> - Minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list. <p>In addition, the draft EIS / ERD does not provide an adaptive management framework that is able to demonstrate that action can be taken to remedy impacts in the event that any subsidence-related effects are greater than anticipated resulting in significant modifications and the loss of habitat critical to the survival of the Scott Reef green turtle population.</p> <p><u>Cumulative impacts</u></p> <p>The project represents a large scale, multiple activity project, parts of which are located in areas identified as habitat critical to survival for marine turtles.</p> <p>While table 9-11 (ch9) provides a discussion on cumulative impacts to marine turtles, the statement <i>‘impacts from these aspects on marine turtles are not predicted to be significant and it is considered that they can be managed to an acceptable level through the implementation of mitigation measures’</i> is not substantiated because:</p> <ul style="list-style-type: none"> • It does not appear that the precautionary principle has been adequately applied taking into account the duration of the project, its location in habitat critical, relative significance of Scott Reef for green turtles and the levels of uncertainty in the predictions of impacts from light, subsidence and underwater noise impacts. • It is not yet clear that there will be relevant biological and impact monitoring programs in place that are able to detect changes attributed to the project and inform management response • The EIS / ERD does not make firm commitments to specific adaptive management measures that can be implemented in the event that measured 	
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		<p>impacts are confirmed to be unacceptable/ inconsistent with the marine turtle recovery plan.</p> <ul style="list-style-type: none"> The majority of effective mitigation measures, including consideration of avoidance and lighting design measures, need to take place at the early design / engineering phases of the project. 	
	<p>c. Sea birds</p>	<p>Context: Migratory Seabirds – Section 6.3.3.4 p. 341 acknowledges the potential for light to disrupt the magnetic compass of migrating birds and offshore facilities to disrupt migration by attracting birds either directly as a result of light emissions or indirectly as a result of light attracting other sources of prey.</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p> <p>The impact assessment provides an overview of the East Asian Australasian flyway overlap with the Browse project area. It concludes that there is unlikely to be an impact as there is no significant nesting or roosting areas nearby. This assessment is disjointed and appears to overlook the potential impact of the project infrastructure on migrating seabirds/shorebirds utilising the East Asian Australasian flyway and the potential for disruption to migration. It is acknowledged that the red wavelength of light is most likely to disrupt the magnetic compass and the wavelengths of light from MODU fall below this. However it is also stated that the blue green wavelengths of light are important for magnetic compass orientation and this is not considered in enough detail.</p> <p>This information is important in the context of Australia’s obligations under the JAMBA and CAMBA.</p>	<p>WEL should consider providing further information on proposed mitigation and management measures, including demonstrating how proposed controls will ensure an acceptable level of impact to seabird populations.</p>
<p>3. Environmental quality of the Commonwealth marine area and Scott Reef</p>		<p>Aspect: FPSO wastewater discharges, including Produced water (PW)</p> <p>Impacts to water quality are predicted from the discharge of produced formation water and cooling water from the FPSO facilities during the operations. According to the EIS / ERD operational discharges at the FPSO facilities will be managed to meet 99% species protection or no effect concentrations at the edge of the mixing zone and at the State waters 3 nm boundary 95% of the time (informed by based on dispersion modelling results). Based on the assessment provided in the EIS / ERD. Is</p>	<p>WEL should provide further information and clarification in Supplementary Report to demonstrate, with a high level of confidence, that the environmental objectives for PW and environmental quality objectives for the Commonwealth marine area, including Scott Reef can be achieved.</p>



	<p>it concluded that there will be no impacts from operational discharges to water quality within the Scott Reef shallow water benthic habitats (<75 m).</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p> <p>It is unclear how WEL’s commitment to achieve 99% species protection at the state waters boundary around Scott Reef would ensure WA’s environmental quality objectives and expectation that a maximum level of protection be afforded to state waters at Scott Reef will also be able to be achieved.</p> <p>Given uncertainties associated with wastewater discharges from the FPSO, the EIS / ERD needs to assess the impacts to the environmental quality of the area that may be affected by planned discharges and evaluate why impacts are acceptable in the context of the values of the Commonwealth marine area (rather than seeking an assessment and approval of a ‘mixing zone’. This approach requires clearer presentation and discussion of the impacts and levels of protection being proposed and what this means in terms of protecting the water quality values defined under the National Water Quality Management strategy and guidelines.</p>	
<p>4. Risk to Scott Reef - Oil spill</p>	<p><u>Context:</u> The oil spill modelling described in the draft EIS was characterised by a number of issues which provide some indication that the modelling results were not providing sufficient inputs into an appropriate description of the environment, risk assessment, and response planning. Examples of issues identified in the preliminary adequacy-for-publication review of the draft included:</p> <ul style="list-style-type: none"> • emulsification thresholds for asphaltenes, • minimum exposure threshold concentrations for surface, dissolved, entrained, and shoreline concentrations • modelling of oil fate and behaviour in shallow-water areas. <p>While some improvements were made in the published Draft EIS issues remain with these points.</p> <p><u>Issues identified from adequacy check and initial preliminary review</u></p>	<p>In the supplementary report WEL should consider:</p> <ul style="list-style-type: none"> • providing further information evaluating the consequence of an oil spill for ecological integrity of Scott Reef taking into account time to contact severity and irreversibility of impacts. • updating oil spill modelling based on current scientific literature including NOPSEMA guidance on oil spill exposure threshold concentrations (incl. MDO) and ITOPF guidance on emulsification thresholds. • adopting engineering controls to further reduce the likelihood FPSO



	<p>The EIA does not fully describe and provide a detailed evaluation of the expected fate, behaviour and ecological consequences of oil in shallow water habitats of Scott Reef.</p> <p>While the scenario of the FPSO vessel grounded on the reef has been identified in the EIS / ERD (p452), there does not appear to be consideration to further reducing the likelihood of a condensate release through adoption of engineering controls. Consideration should be given to engineering controls or evaluation of feasible alternatives such as double bottom / hull or other engineering measures that would further limit the likelihood and potential scale of a condensate spill resulting from a vessel grounding scenario.</p> <p>Addressing these issues is important to support a case for the inherent acceptability of spill risks for the project taking into account the proximity of the Torosa FPSO to Scott Reef, and the potential for a spill of this nature to impact on the values of the Scott Reef complex, key ecological features and habitats for threatened and migratory species within hours of a large scale condensate spill occurring.</p>	<p>grounding on Scott Reef and the subsequent release of condensate.</p>
<p>5. Decommissioning</p>	<p>Draft EIS does not provide adequate commitment in relation to the process that will be applied to the project for progressive removal of property from the title areas as it becomes disused.</p>	<p>WEL should consider clear commitments to progressively removing property from title areas as it becomes disused at the end of activity stages.</p>
<p>6. Greenhouse Gas Emissions</p>	<p>The Draft EIS considers avoidance, mitigation and management of Greenhouse Gas at a high level, however, the document lacks detail including:</p> <ul style="list-style-type: none"> • how GHG emissions have been avoided, • how effective the proposed measures are, • whether the measures are mitigating emissions to the greatest extent possible, • whether the measures proposed are best practice • what other options there are that might be considered to achieve better outcomes over the life of the project including but not limited to investigation of emerging technologies, research into better methods etc. 	<p>WEL should consider providing further evidence to demonstrate that GHG emissions have been avoided, mitigated and managed to the fullest extent possible within the scope of the project.</p> <p>This should include consideration of emerging technologies and their applicability to the project and options to look at research to develop better mitigation technology over the life of the project.</p>



<p>7. Offsets</p>	<p>Offsets are required to compensate for residual significant impacts, and are not used to make unacceptable impacts acceptable.</p> <p>No discussion of offsets is provided in the draft EIS. Where a residual significant impact occurs that is determined to be acceptable, offsets will be required to compensate for the residual impacts.</p> <p>The Department expects that an offset package will be developed for this project which may include Green Turtles, Pygmy Blue Whales, Greenhouse Gas Emissions and the environment of Scott Reef.</p>	<p>WEL to commit to developing an offset plan for whales, turtles, GHG and Scott Reef and should provide information in the supplement on proposed offset options.</p> <p>As stated within the EIS guidelines, any offsets proposed must consider the principles in the <i>Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (2012)</i> (among other considerations in 3.10.4 of the EIS guidelines.</p>
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From: s22
To: s47F
Cc: s22
Subject: EPBC Act publishing requirements for supplement [SEC=OFFICIAL]
Date: Friday, 15 May 2020 9:35:00 AM
Attachments: [2018-8319-Direction to publish - letter signed.pdf](#)

Hi s47F and s47F

Thanks for the meeting on Wednesday, I thought I would clear up the requirements for publishing under the EPBC Act.

For the purposes of this step in the process, you are required to provide the Department with:

- a copy of all public comments received (if any);
- a summary of each of the comments (if any) and how you have addressed each of them; and
- a revised version of your documentation with any changes or additions needed to take account of the public comments (if any).

Once you have provided us with this information and it has been reviewed, you will then need to publish the summary of comments and your responses, together with the original documentation (draft EIS) including any changes or additions made in response to the published comments (or a notice which meets the requirements of the relevant provisions of Part 16.03 (5 – 7) of the *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations)) within 10 business days. These requirements were set out in the direction to publish letter which I have attached.

A key extract from the EPBC Act regulations is provided below:

16.03

(6) The material or notice must state:

- (a) the provision of the Act that requires the material to be published; and*
- (b) the identification number for the action, allocated by the Department; and*
- (c) a descriptive title for the action; and*
- (d) the location of the action; and*
- (e) the name of the person intending to take the action; and*
- (f) each matter protected by a provision of Part 3 of the Act; and*
- (g) where a copy of the material may be viewed or obtained:*
 - (i) in electronic and hard copy form; and*
 - (ii) at a reasonable cost or without charge.*

(7) The notice must be approved by the Secretary before it is first published.

Please let me know whether you have any questions or require further information. To look at the full requirements just click on the link to the regulations [here](#).

Kind regards,

s22

Senior Assessment Officer | Major Projects West Section
Assessments (WA, SA, NT), Post Approval and Policy Branch | Environment Approvals Division
Department of Agriculture, Water and the Environment | GPO Box 787 Canberra ACT 2601 |
awe.gov.au

s22





EPBC Ref: 2018/8319

Richard van Lent
Senior Vice President Browse
Woodside Energy Ltd
GPO Box D188
PERTH WA 6840

Dear Richard van Lent,

Direction to publish draft Environmental Impact Statement and amended fee schedule for Browse to North West Shelf Development, Indian Ocean, WA

I am writing to you in relation to your proposal to develop and extract hydrocarbons from Brecknock, Calliance and Torosa gas reservoirs near Scott Reef in WA, located approximately 425km north of Broome, Western Australia.

On the 22 February 2019, a delegate of the Minister decided that the proposed action is a controlled action and that it requires assessment and a decision about whether approval should be given under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Department has reviewed a draft of the Environmental Impact Statement that you prepared for the proposed action and has determined that the draft EIS meets the requirements of the EIS Guidelines and the requirements for publication for public comment.

You are now required to publish the information you have provided on the proposed action **within 20 business days of the date of this letter**. This allows for public consultation on the potential impacts of your project.

The information must be available for comment for 40 business days and during this time any third parties can comment on the proposed action. The Department has reviewed and approved a draft of the public comment notice that you provided.

The Department has agreed with the WA government that public comments can be submitted to the WA Environment Protection Agency's consultation hub in relation to both the Commonwealth and State processes. Any comments received will be provided to you in full so that you have an opportunity to address any issues raised. You are then required to provide us with:

- a copy of all public comments received (if any);
- a summary of each of the comments (if any) and how you have addressed each of them; and
- a revised version of your documentation with any changes or additions needed to take account of the public comments (if any); or
- if no public comments are received, a written statement to that effect.

Once you have provided us with this information, you will then need to publish the summary of comments and your responses, together with the original documentation including any changes or additions made in response to the published comments (or a notice which meets

the requirements of the relevant provisions of Part 16.03 (5 – 7) of the *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations)) **within 10 business days**.

Cost recovery fees

Please note, under subsection 520(4A) of the EPBC Act and the EPBC Regulations your assessment is subject to cost recovery.

Please find attached a revised fee schedule for your proposal and note that these fees have changed. An invoice for Stage 3 and Stage 4 will be provided shortly.

Please note the fee for Stage 3 must be paid before the Department can review the finalised preliminary documentation and provide guidelines on how to publish this. Stage 4 must be paid before the Department can decide whether the proposed action can be approved or not.

If you disagree with the fee schedule provided, you may apply under section 514Y of the EPBC Act for reconsideration of the method used to calculate the fee. The application for reconsideration must be made within 30 business days of the date of the fee schedule and can only be made once in respect of a fee. Further details regarding the reconsideration process and an application form for reconsideration can be found on the Department's website at: <http://www.environment.gov.au/protection/environment-assessments/assessment-and-approval-process/refer-proposed-action>.

The assessment process will commence once we have received any public comments and your responses to them. A decision on whether the proposed action can be approved or not would generally be expected within 40 business days of that time, unless further information is required.

If you have any questions about the assessment process or this decision, please contact the project manager, [REDACTED] by email to [REDACTED] or telephone [REDACTED] and quote the EPBC reference number at the top of this letter.

Yours sincerely



Gregory Manning
Assistant Secretary
Assessments (WA, SA, NT), Post Approval and Policy Branch

13 December 2019