Environmental Protection Act 1986

Section 43A

NOTICE OF DECISION TO CONSENT TO CHANGE TO PROPOSAL DURING ASSESSMENT

PERSON TO WHOM THIS NOTICE IS GIVEN

(a) Woodside Energy Ltd (ACN: 005 482 986)
Woodside Energy Ltd
11 Mount Street
PERTH WA 6000

PROPOSAL TO WHICH THIS NOTICE RELATES:

Browse to North West Shelf (NWS) Project
Assessment No. 2191

Pursuant to section 43A of the *Environmental Protection Act 1986* (EP Act), the Environmental Protection Authority (EPA) consents to the proponent making the following changes to the proposal during assessment without a revised proposal being referred

The proposed change to the proposal that may have an impact on the environment is the:

1. Increase in the number of drilling and completion activities of up to approximately 21 wells to 24 wells and an increase in drill cuttings discharges from 800 m^3 per well to 850 m^3 per well.
2. Increase in the direct seabed disturbance from approximately 20 ha of seabed to approximately 0.31 km^2 (31 ha) (including 25% contingency).

Additional text changes are proposed to the Key Proposal Characteristics Table to clarify and remove references to the proposal referral document (Woodside, Oct 2018). Text changes include:

<u>Changes to Elements</u>

- The addition of the text '*Temporary*' to the mooring of MODU,
- The amendment of water supply, power supply and vessel discharges operational elements description text from *'(construction vessels, MODU, inspection, Maintenance and repair (IMR) vessels, condensate tankers, supply boat operations, support vessel operations)*' to *'(installation vessels, inspection, maintenance and repair (IMR) vessels, MODU's and project vessels)*',
- The addition of an '*Air emissions – offshore activities'* element.

<u>Changes to Description</u>

- The addition of the text '*from vessels and MODU*' and '*putrescible organic waste*' to the Vessel discharge element description.
- The addition of the text '*Disposal of*' to the Drill cuttings and fluid discharges Description.
- The substitution of the text '*Control fluid discharged at the Christmas Trees*' in place of '*Discharge of control fluid'* describing the seabed control fluid discharges element.
- The reformatting and addition of the text '*using dynamic Positioning (DP)*', '*from helicopter movements from the MODU*' and '*from IMR activities*' to the underwater noise emissions element.
- The substitution of the text '*during well unloading. This occurs only during well installation or intervention for repairs.*' in place of '*FPSO facilities and'*
- The addition of the Air emissions description to include *'Air emissions resulting from power generation on project vessels and MODU'.*

<u>Changes to the proposed authorised extent</u>

- The amendment of the vessel discharges element extent reference '*Marine Orders 91 (Marine pollution prevention – Oil) 2006'* to *'Marine Orders 91 (Marine pollution prevention – Oil) 2014'.*
- The amendment of the drill cuttings and fluid discharges proposed authorised extent to include *'with up to approximately 24 wells to be developed in the State Proposal Area. Approximately 100-130 m3 well discharge fluid per well during well unloading.*' in place of '*are anticipated to be generated*' and '*Refer to Section 2.8.4 for further details'.*
- The addition of the following text '*water-based' and 'subsea'* is added to the extent description and '*Maximum volume of control fluid that will be released to the marine environment per manifold is 1,900 L per year of water based fluid containing approximately ~3% active ingredient (40–68 L of control fluid additive)'* is substituted in place of *'Refer to Section 2.8.3.4 for further details'* for the Seabed control fluid discharge element.
- The substitution of the text '*Noise related behavioural disturbance radius of up to approximately 10.5 km around drilling and installation activities. Noise related behavioural disturbance radius of up to approximately 500 m around subsea infrastructure during operations'* in place of *'Noise frequencies associated with these activities are described in Section 2.8.6.2'* for the underwater noise emissions element.
- The deletion of the text *'Refer to Section 2.8.6.3 for further details.'* for the light emissions operational lighting element.
- The deletion of the text *'for operations and safety. Refer to Section 2.8.6.3 for further details.'* for the light emissions flaring element.
- The deletion of text '*As required*' in relation to light emissions flaring.

EFFECT OF THIS NOTICE:

The EPA considers that the change is unlikely to significantly increase any impact the proposal may have on the environment and therefore the proponent may change the proposal as provided for in this notice.

RIGHTS OF APPEAL:

There are no rights of appeal under the EP Act in respect of this decision.

[Signed 16 December 2019]

Dr Tom Hatton
Delegate of the Environmental Protection Authority
CHAIRMAN

Attachment A: Key proposal characteristics of the State component of the proposed Browse to NWS Project - updated

Summary of the Proposal

Proposal Summary	
Proposal Title	Proposed Browse to NWS Project (State component)
Proponent Name	Woodside Energy Ltd, as Operator for and on behalf of the Browse Joint Venture
Short Description	Drilling and completion, subsea installation, commissioning, operation, inspection, maintenance and repair and decommissioning of subsea wells and associated subsea infrastructure located in Western Australian State waters, to extract hydrocarbons from the Torosa reservoir, located approximately 425 km north of Broome and approximately 290 km off the Kimberley coast.

Location and proposed extent of physical and operational elements of the Proposal

Element	**Description**	**Proposed Authorised Extent**
Physical Elements		
Drilling and completion activities of up to approximately 24 wells	Installation and physical presence of infrastructure within indicative field layout below	Approximately 0.31 km^2 of direct seabed disturbance (including 25% contingency).
Associated subsea infrastructure (Christmas trees, manifolds, flowlines, and umbilicals)		
Temporary mooring of MODU		
Seabed preparation and flowline stabilisation		

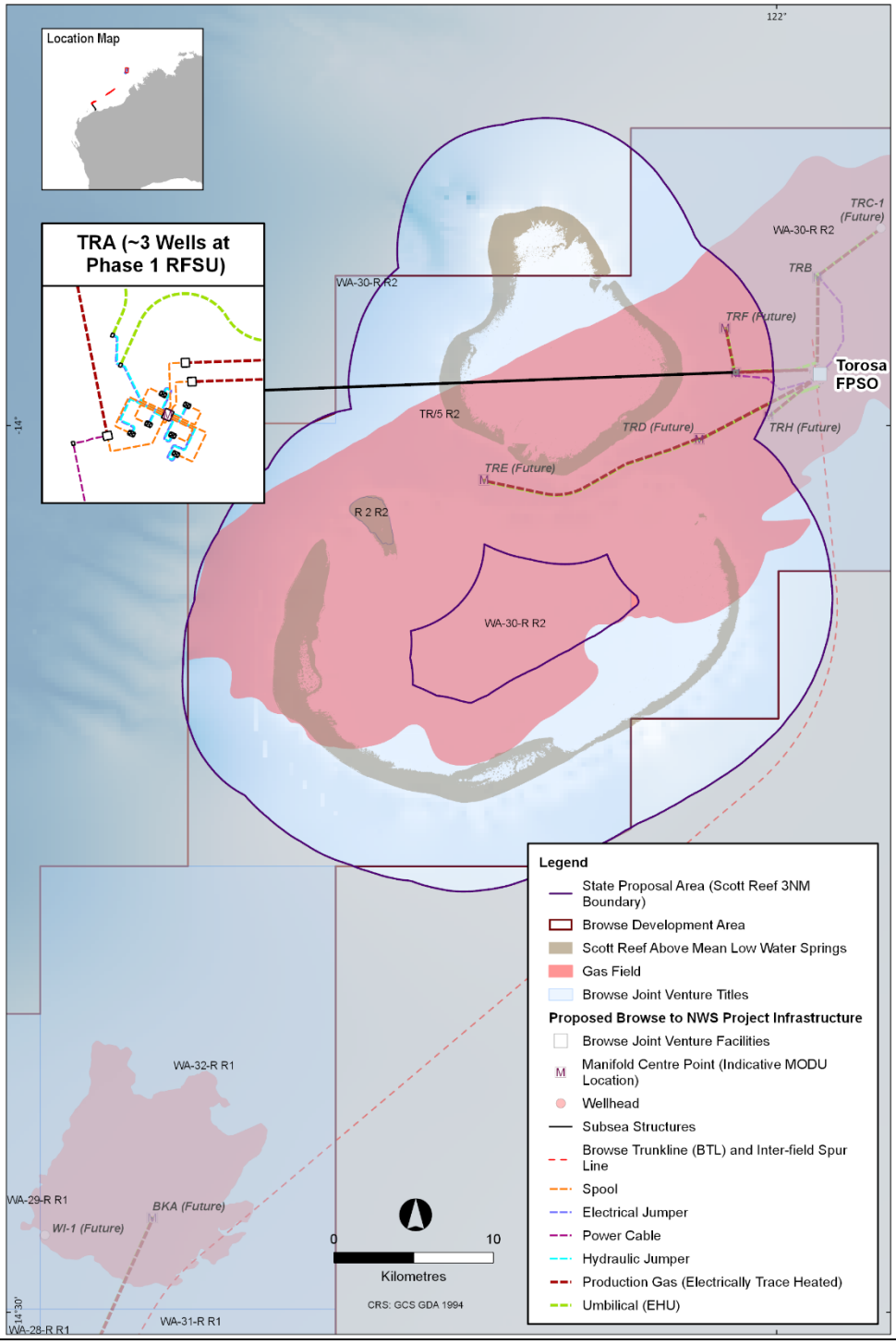
Element	Description	Proposed Authorised Extent
Operational Elements		
Water supply (installation vessels, Inspection, Maintenance and Repair (IMR) vessels, MODUs and project vessels)	Water requirements sourced either from seawater (reverse osmosis plant) or loaded at port.	Limited water requirements to support drilling and completion activities, subsea installation activities (e.g. potential hydrotest), vessel and MODU water needs and potentially also for decommissioning activities.
Power supply (installation vessels, IMR vessels, MODUs and project vessels)	Power generated on board vessels and MODU.	As required for operations and safety.
Vessel discharges (installation vessels, IMR vessels, MODU, and project vessels).	Discharges from vessels and MODU include treated sewage, drain waters, cooling water, sullage, putrescible organic waste and desalination brine.	Limited volumes discharged in accordance with International Convention for the Prevention of Pollution from Ships MARPOL 73/78 Annex I, as applied in Australia under the Commonwealth *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Part II Prevention of pollution from oil); Marine Orders 91 (Marine pollution prevention – Oil) 2014 as applicable to vessel class; *Pollution of Waters by Oil and Noxious Substance Act 1986.*
Drill cuttings and fluid discharges	Drill cuttings and drilling fluids.	Approximately 850 m^3 of cuttings per well, with up to approximately 24 wells to be developed in the State Proposal Area. Approximately 100-130 m^3 well discharge fluid per well during well unloading.

Element	Description	Proposed Authorised Extent
Hydrotest fluid discharges	Hydrotest fluids discharged at the seabed during integrity testing of the subsea infrastructure.	One-off discharges of up to approximately 950 m^3 of hydrotest fluid for the TRE flowline and up to approximately 250 m^3 at the TRF flowline.
Produced water	Low volumes of water that occurs naturally within the hydrocarbon-bearing geological formations.	Small volumes of formation water may result during well unloading activities by the MODU. These will be discharged directly from the MODU.
Subsea control fluid discharge	Control fluid discharged at the Christmas trees to maintain valve functionality.	Intermittent discharge of water-based hydraulic control fluid when subsea valves are actuated (~0.1 L). Maximum volume of control fluid that will be released to the marine environment per manifold is 1,900 L per year of water based fluid containing approximately ~3% active ingredient (40–68 L of control fluid additive).

Element	Description	Proposed Authorised Extent
Underwater noise emissions	Underwater noise: • generated during drilling, completion and installation activities (including vessel movements using Dynamic Positioning (DP), vertical seismic profiling (VSP) and distributed acoustic sensing (DAS) • generated from subsea infrastructure during operations • from piling activities for mooring installation for the MODU (note that this is unlikely to be required) • from installation vessels, IMR vessels, MODUs and project vessels • from helicopter movements from the MODU • from IMR activities.	Noise related behavioural disturbance radius of up to approximately 10.5 km around drilling and installation activities Noise related behavioural disturbance radius of up to approximately 500 m around subsea infrastructure during operations
Light emissions – operational lighting	Artificial light emitted by installation vessels, IMR vessels, MODUs and project vessels.	Limited to functional lighting at levels that provide a safe working environment for personnel.
Light emissions – flaring	Intermittent flaring from the MODU during well unloading. This occurs only during well installation or intervention for repairs.	

Element	Description	Proposed Authorised Extent
Air emissions – offshore activities	Air emissions resulting from power generation on project vessels and MODU.	

Figure 1: Field Layout



Environmental Protection Act 1986

Section 43A

STATEMENT OF REASONS

CONSENT TO CHANGE PROPOSAL DURING ASSESSMENT

Proposal: Browse to North West Shelf (NWS) Project

Proponent: Woodside Energy Ltd (Woodside) for and on behalf of the Browse Joint Venture (BJV) (Woodside Brose Pty Ltd, Shell Australia Pty Ltd (Shell), BP Developments Australia Pty Ltd (BP), Japan Australia LNG (MIMI Browse) Pty Ltd (MIMI) and PetroChina International Investment (Australia) Pty Ltd (PetroChina)).

Decision

For the reasons outlined below, the EPA has determined to consent to the Proponent changing the Proposal outlined in Schedule 1 attached to this Statement of Reasons.

Background

On 15 October 2018, Woodside Energy Ltd on behalf of the Browse Joint Venture participants referred the Proposal to the Environmental Protection Authority (EPA) under section 38 of the *Environmental Protection Act 1986* (EP Act). The Proposal included drilling and completion, installation, commissioning, operation, well repair and workover and decommissioning of subsea wells and associated subsea infrastructure located in Western Australian State waters, to extract hydrocarbons from the Torosa reservoir located approximately 425km north of Broome and approximately 290km off the Kimberley Coast.

The EPA determined to assess the Proposal at the level of Public Environmental Review on 22 January 2019.

In advance of the EPA endorsing the environmental impact assessment documentation for public environmental review, the Proponent has sought the EPA's consent to change the Proposal.

Relevant Statutory and Administrative Provisions

Section 3.8 of the Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual 2016 guides what information the EPA requires from a person wanting to change its proposal during assessment.

In considering the request for consent, the EPA considered the:

- details of the proposed change,
- statement of the significance of the change; and
- rationale for the change.

Materials considered in making this decision

In determining whether to consent to the proponent changing the proposal the EPA has considered the following:

1. Woodside Energy Ltd, Proposed Browse to NWS Development, EPBC Act and EP Act Environmental Referrals, Supporting Document, November 2018.
2. Woodside Energy Ltd, Proposed Browse to NWS Project, Draft EIS/ERD, State Proposal area Section 43A Amendment (EPA 2191), 16 December 2019.
3. Woodside Energy Ltd, Draft EIS/ERD Proposed Browse to North West Shelf Project (EPBC 2018/8319, EPA 2191), November 2019.

Consideration

1. <u>Nature of the proposed change</u>

   The proposed change to the proposal that may have an impact on the environment is the:

   1. Increase in the number of drilling and completion activities of up to approximately 21 wells to 24 wells and an increase in drill cuttings discharges from 800 m^3 per well to 850 m^3 per well.
   2. Increase in the direct seabed disturbance from approximately 20 ha of seabed to approximately 0.31 km^2 (31 ha) (including 25% contingency).

   The changes to proposal have the potential to change the environmental impact to the following environmental factors:

   - Benthic Communities and Habitats,
   - Marine Environmental Quality,
   - Marine Fauna; and
   - Air Quality.

   Changes to Benthic Communities and Habitats, Marine Environmental Quality and Marine Fauna through the increase in direct seabed disturbance on 11 ha and the increase of 50 m^3 drill cuttings disposal per well is not determined to significantly increase impacts on the environment as the 'Maximum Level of Ecological Protection' (i.e. no change) is proposed for Scott Reef. Scott Reef is the single significant environmental value contained within the project area.

   Changes to Air Quality impacts through increased in CO_2-e emission arise from the installation, construction, operation and decommissioning of three additional wells. The total air emissions for the life of the project is estimated to be 0.4 Mt CO_2-e. The additional CO_2-e emissions is approximately 50,000 tCO_2-e as the total CO_2-e emissions over the life of the proposal in State waters. A change of 50,000 tCO_2-e over the life of the project is not determined as a significant increase in impact due to the relatively small increase in proportion and magnitude.

Additional text changes are proposed to the Key Proposal Characteristics Table to clarify and remove references to the proposal referral document (Woodside, Oct 2018). The additional text changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal included within the original referral document (Woodside, 2018). The text changes include:

Changes to Elements

- The addition of the text '*Temporary*' to the mooring of MODU,
- The amendment of water supply, power supply and vessel discharges operational elements description text from *'(construction vessels, MODU, inspection, Maintenance and repair (IMR) vessels, condensate tankers, supply boat operations, support vessel operations)*' to *'(installation vessels, inspection, maintenance and repair (IMR) vessels, MODU's and project vessels)*',
- The addition of an '*Air emissions – offshore activities'* element.

Changes to Description

- The addition of the text '*from vessels and MODU*' and '*putrescible organic waste*' to the Vessel discharge element description.
- The addition of the text '*Disposal of*' to the Drill cuttings and fluid discharges Description.
- The substitution of the text '*Control fluid discharged at the Christmas Trees*' in place of '*Discharge of control fluid'* describing the seabed control fluid discharges element.
- The reformatting and addition of the text '*using dynamic Positioning (DP)*', '*from helicopter movements from the MODU*' and '*from IMR activities*' to the underwater noise emissions element.
- The substitution of the text '*during well unloading. This occurs only during well installation or intervention for repairs.*' in place of '*FPSO facilities and'*
- The addition of the Air emissions description to include *'Air emissions resulting from power generation on project vessels and MODU'.*

Changes to the proposed authorised extent

- The amendment of the vessel discharges element extent reference '*Marine Orders 91 (Marine pollution prevention – Oil) 2006'* to *'Marine Orders 91 (Marine pollution prevention – Oil) 2014'.*
- The amendment of the drill cuttings and fluid discharges proposed authorised extent to include *'with up to approximately 24 wells to be developed in the State Proposal Area. Approximately 100-130 m3 well discharge fluid per well during well unloading.*' in place of '*are anticipated to be generated*' and '*Refer to Section 2.8.4 for further details'.*
- The addition of the following text '*water-based' and 'subsea'* is added to the extent description and '*Maximum volume of control fluid that will be released to the marine environment per manifold is 1,900 L per year of water based fluid containing approximately ~3% active ingredient (40–68 L of control fluid additive)'* is substituted in place of *'Refer to Section 2.8.3.4 for further details'* for the Seabed control fluid discharge element.
- The substitution of the text '*Noise related behavioural disturbance radius of up to approximately 10.5 km around drilling and installation activities. Noise related behavioural disturbance radius of up to approximately 500 m around*

subsea infrastructure during operations' in place of *'Noise frequencies associated with these activities are described in Section 2.8.6.2'* for the underwater noise emissions element.

- The deletion of the text *'Refer to Section 2.8.6.3 for further details.'* for the light emissions operational lighting element.
- The deletion of the text *'for operations and safety. Refer to Section 2.8.6.3 for further details.'* for the light emissions flaring element.
- The deletion of text '*As required*' in relation to light emissions flaring.

2. Stage of the assessment process

The proponent referred the proposal to the EPA on 15 October 2018. On 22 January 2019, the EPA decided to assess the proposal and set the level of assessment Environmental Review - Public Environmental Review. The Environmental Scoping Document was approved by the EPA on 8 July 2019. The proponent submitted an Environmental Impact Statement/Environmental Review (EIS/ERD) for adequacy review against the requirements of the approved Environmental Scoping document on 29 November 2019. The adequacy review is scheduled for decision 16 December 2019. The outcome of the adequacy review is proposed to reflect the outcome of this s 43A assessment.

3. Currency, relevance and reliability of the information, including submissions

The information contained within the Woodside Energy Ltd, Draft EIS/ERD Proposed Browse to North West Shelf Project (EPBC 2018/8319, EPA 2191), November 2019 is considered to be current, relevant and reliable on the following basis:

1. The proposal description contained in the EIS/ERD reflects the changed proposal.
2. The potential impacts for each factor (as relevant) described within the EIS/ERD reflects the potential impacts for each factor (as relevant) from the changed proposal.
3. The assessment of impacts for each factor (as relevant) described within the EIS/ERD reflects the changed proposal.
4. The description of mitigation for each factor (as relevant) including management actions described within the EIS/ERD reflects the changed proposal.
5. The predicted outcome for each factor (as relevant) described within the EIS/ERD reflects the changed proposal.

4. Community engagement

The initial referral was open for 7-day public comment from 21 November 2018 to 27 November 2018.

Community engagement has not been undertaken in relation to the change.

Public review will be undertaken during the public environmental review process for the EIS/ERD. The EIS/ERD will include the changes discussed in this Statement of Reasons.

5. Level of public concern

A high level of public concern relating to proposals in Browse Basin is expected.

Consideration of Whether the Change is Unlikely to Significantly Increase Any Impact that the Proposal May Have on the Environment

The following were considered:

a) Values, sensitivity and the quality of the environment which is likely to be impacted
The EPA Chairman's' determination identified the preliminary key environmental factors for the current proposal as:
- Benthic communities and Habitat,
- Marine Environmental Quality,
- Marine Fauna; and
- Air Quality.

Three additional wells, increase in 11 ha or direct seabed disturbance and the disposal of an additional 50 m^3 drill cuttings per well, does not cause additional key environmental factors to be considered for the purposes of the assessment.

b) Extent (intensity, duration, magnitude and geographic footprint) of the likely impacts

The potential Impact Significance Level for the key environmental factors, Benthic communities and Habitat, Marine Environmental Quality, Marine Fauna and Air Quality remains unchanged.

Changes to Benthic Communities and Habitats, Marine Environmental Quality and Marine Fauna through increased direct seabed disturbance on 11 ha and an additional 50 m^3 drill cuttings disposal per well is unlikely to significantly increase impacts on the environment because:

1. The referral footprint and well numbers were stated as 'approximate' specifically acknowledging refinement of the proposal was to occur. The increase of 3 wells from 21 to 24, the increase of 11 ha in disturbance and the additional 50 m^3 in drill cutting volume per well is proportionally considered within the scope of approximate.
2. a 'Maximum Level of Ecological Protection' (i.e. no change) is proposed for Scott Reef being the only significant environmental value contained within the project envelope.
3. No seabed disturbance of the Scott Reef shallow water benthic communities and habitats (less than 75 m water depth) will be undertaken.

Changes to Air Quality impacts through increased in CO_2-e emission arise from the installation, construction, operation, maintenance and decommissioning of three additional wells. A total of 0.4 Mt CO_2-e is identified as the total CO_2-e emissions over the life of the proposal in state waters for 24 wells. A potential change of 50,000 tCO_2-e is not determined to be a significant increase in impact due to the relatively small increase in proportion and magnitude.

c) Consequence of the likely impacts (or change)

The change to proposal does not alter the types and consequence of likely impacts on the environment as:

- a 'Maximum Level of Ecological Protection' is maintained for Scott Reef; and
- a potential change of 50,000 tCO_2-e is not determined to be a significant increase in impact due to the relatively small increase in proportion and magnitude.

d) Resilience of the environment to cope with the impacts or change

The resilience of the environment to cope remains unchanged from that of the original referral. The increase of three wells from 21 to 24, the increase of 11 ha in disturbance and the additional 50 m^3 in drill cutting volume per well is proportionally minor and is considered within the scope of approximate. The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal. The referral footprint and well numbers were stated as 'approximate' specifically acknowledging refinement of the proposal was to occur.

e) Cumulative impacts with other projects

No additional significance to cumulative impacts with other projects compared to those described in the Referral Supporting Document, and the EIS/ERD. The referral footprint and well numbers were stated as 'approximate' specifically acknowledging refinement of the proposal was to occur. The increase of three wells from 21 to 24, the increase of 11 ha in disturbance and the additional 50 m^3 in drill cutting volume per well is proportionally considered within the scope of approximate. The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal.

f) Connections and interactions between parts of the environment to inform holistic view of impacts of the whole environment

There is no change to the significance of potential connections and interactions of the environment due to the change to the original proposal. The referral footprint and well numbers were stated as 'approximate' specifically acknowledging refinement of the proposal was to occur. The increase of three

wells from 21 to 24, the increase of 11 ha in disturbance and the additional 50 m^3 in drill cutting volume per well is proportionally minor and is considered within the scope of approximate. The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal.

g) Level of confidence in the prediction of impacts and the success of proposed mitigation

The increase in wells, seabed disturbance and drill discharges in the proposal does not change the impacts described in the Referral Supporting Document, given the magnitude of impact change and mitigation proposed. Therefore, the level of confidence in the prediction of impacts and the success of the proposed mitigation remains unchanged from the referred proposal and the proposal described in the EIS/ERD. The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal.

h) Public interest about the likely effect of the proposal, if implemented, on the environment, and public information that informs the EPA's assessment

Submissions received during the referral public comment period indicate that greenhouse gas emissions, potential impacts on the Ningaloo Reef and the Kimberley Coast and impacts to air quality as a result of the proposal are a concern.

In summary, the EPA considers that the change is unlikely to significantly increase any impact the proposal may have on the environment primarily because:

- The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal included within the original referral document (Woodside, 2018).
- a 'Maximum Level of Ecological Protection is maintained for Scott Reef; and
- a potential change of 50,000 tCO_2-e is not determined to be a significant increase in impact due to the relatively small increase in proportion and magnitude.

Schedule 1

Change to Proposal

Summary of the Proposal

Proposal Summary	
Proposal Title	Proposed Browse to NWS Project (State component)
Proponent Name	Woodside Energy Ltd, as Operator for and on behalf of the Browse Joint Venture
Short Description	Drilling and completion, subsea installation, commissioning, operation, inspection, maintenance and repair and decommissioning of subsea wells and associated subsea infrastructure located in Western Australian State waters, to extract hydrocarbons from the Torosa reservoir, located approximately 425 km north of Broome and approximately 290 km off the Kimberley coast.

Location and proposed extent of physical and operational elements of the Proposal

Element	Description	Proposed Authorised Extent
Physical Elements		
Drilling and completion activities of up to approximately 24 wells	Installation and physical presence of infrastructure within indicative Figure 1: field layout	Approximately 0.31 km^2 of direct seabed disturbance (including 25% contingency).
Associated subsea infrastructure (Christmas trees, manifolds, flowlines, and umbilicals)		
Temporary mooring of MODU		
Seabed preparation and flowline stabilisation		

Element	Description	Proposed Authorised Extent
Operational Elements		
Water supply (installation vessels, Inspection, Maintenance and Repair (IMR) vessels, MODUs and project vessels)	Water requirements sourced either from seawater (reverse osmosis plant) or loaded at port.	Limited water requirements to support drilling and completion activities, subsea installation activities (e.g. potential hydrotest), vessel and MODU water needs and potentially also for decommissioning activities.
Power supply (installation vessels, IMR vessels, MODUs and project vessels)	Power generated on board vessels and MODU.	As required for operations and safety.
Vessel discharges (installation vessels, IMR vessels, MODU, and project vessels).	Discharges from vessels and MODU include treated sewage, drain waters, cooling water, sullage, putrescible organic waste and desalination brine.	Limited volumes discharged in accordance with International Convention for the Prevention of Pollution from Ships MARPOL 73/78 Annex I, as applied in Australia under the Commonwealth *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Part II Prevention of pollution from oil); Marine Orders 91 (Marine pollution prevention – Oil) 2014 as applicable to vessel class; *Pollution of Waters by Oil and Noxious Substance Act 1986.*
Drill cuttings and fluid discharges	Drill cuttings and drilling fluids.	Approximately 850 m^3 of cuttings per well, with up to approximately 24 wells to be developed in the State Proposal Area. Approximately 100-130 m^3 well discharge fluid per well during well unloading.
Hydrotest fluid discharges	Hydrotest fluids discharged at the seabed during integrity testing of the subsea infrastructure.	One-off discharges of up to approximately 950 m^3 of hydrotest fluid for the TRE flowline and up to approximately 250 m^3 at the TRF flowline.

Element	Description	Proposed Authorised Extent
Produced water	Low volumes of water that occurs naturally within the hydrocarbon-bearing geological formations.	Small volumes of formation water may result during well unloading activities by the MODU. These will be discharged directly from the MODU.
Subsea control fluid discharge	Control fluid discharged at the Christmas trees to maintain valve functionality.	Intermittent discharge of water-based hydraulic control fluid when subsea valves are actuate (~0.1 L). Maximum volume of control fluid that will be released to the marine environment per manifold is 1,900 L per year of water based fluid containing approximately ~3% active ingredient (40–68 L of control fluid additive).
Underwater noise emissions	Underwater noise: • generated during drilling, completion and installation activities (including vessel movements using Dynamic Positioning (DP), vertical seismic profiling (VSP) and distributed acoustic sensing (DAS) • generated from subsea infrastructure during operations • from piling activities for mooring installation for the MODU (note that this is unlikely to be required) • from installation vessels, IMR vessels, MODUs and project vessels • from helicopter movements from the MODU • from IMR activities.	Noise related behavioural disturbance radius of up to approximately 10.5 km around drilling and installation activities Noise related behavioural disturbance radius of up to approximately 500 m around subsea infrastructure during operations

Element	Description	Proposed Authorised Extent
Light emissions – operational lighting	Artificial light emitted by installation vessels, IMR vessels, MODUs and project vessels.	Limited to functional lighting at levels that provide a safe working environment for personnel.
Light emissions – flaring	Intermittent flaring from the MODU during well unloading. This occurs only during well installation or intervention for repairs.	
Air emissions – offshore activities	Air emissions resulting from power generation on project vessels and MODU.	

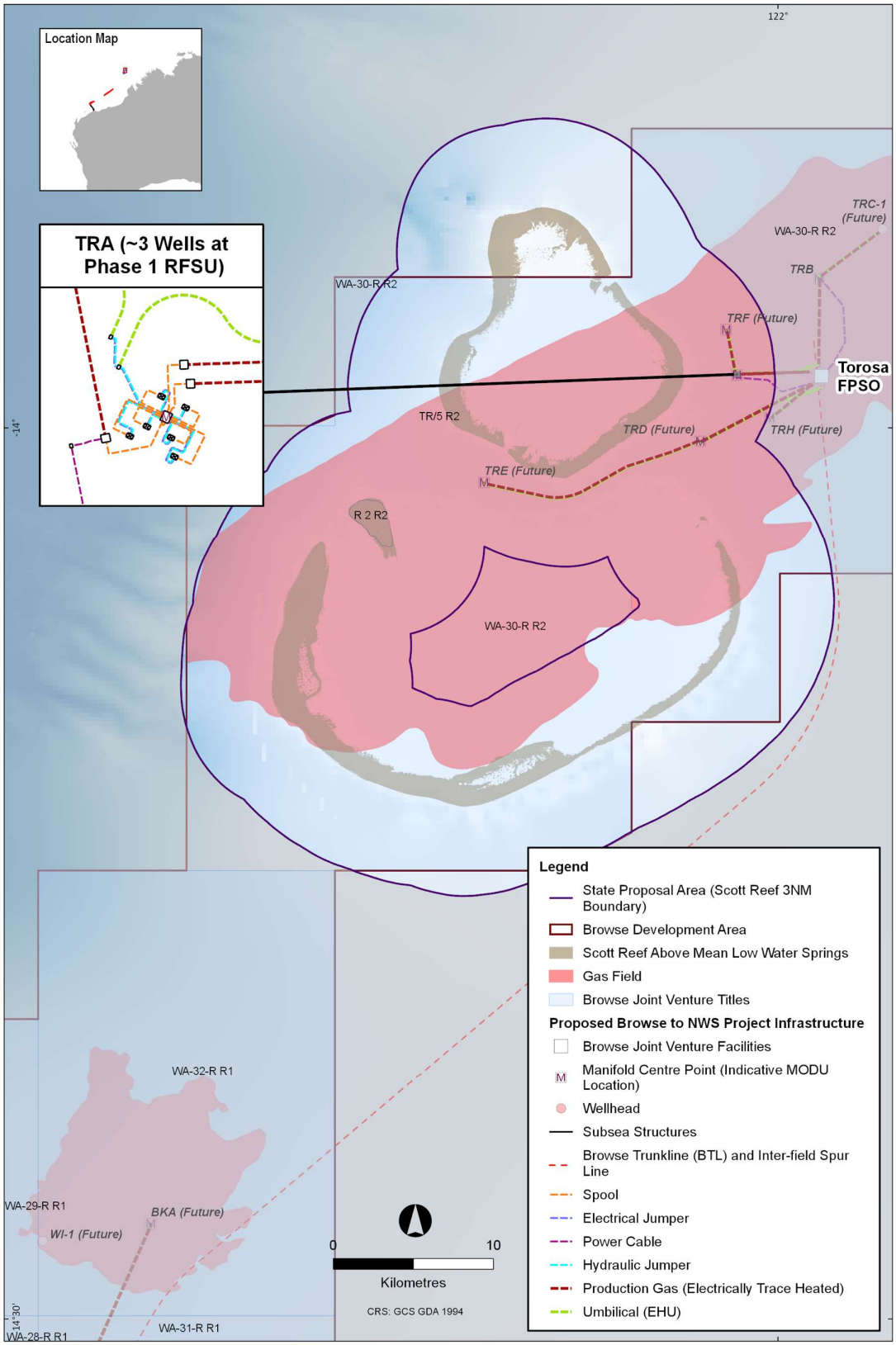


Figure 1 - Field Layout

Environmental Protection Act 1986

Section 43A

STATEMENT OF REASONS

CONSENT TO CHANGE PROPOSAL DURING ASSESSMENT

Proposal: Browse to North West Shelf (NWS) Project

Proponent: Woodside Energy Ltd (Woodside) for and on behalf of the Browse Joint Venture (BJV) (Woodside Brose Pty Ltd, Shell Australia Pty Ltd (Shell), BP Developments Australia Pty Ltd (BP), Japan Australia LNG (MIMI Browse) Pty Ltd (MIMI) and PetroChina International Investment (Australia) Pty Ltd (PetroChina)).

Decision

For the reasons outlined below, the EPA has determined to consent to the Proponent changing the Proposal outlined in Schedule 1 attached to this Statement of Reasons.

Background

On 15 October 2018, Woodside Energy Ltd on behalf of the Browse Joint Venture participants referred the Proposal to the Environmental Protection Authority (EPA) under section 38 of the *Environmental Protection Act 1986* (EP Act). The Proposal included drilling and completion, installation, commissioning, operation, well repair and workover and decommissioning of subsea wells and associated subsea infrastructure located in Western Australian State waters, to extract hydrocarbons from the Torosa reservoir located approximately 425km north of Broome and approximately 290km off the Kimberley Coast.

The EPA determined to assess the Proposal at the level of Public Environmental Review on 22 January 2019.

In advance of the EPA endorsing the environmental impact assessment documentation for public environmental review, the Proponent has sought the EPA's consent to change the Proposal.

Relevant Statutory and Administrative Provisions

Section 3.8 of the Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual 2016 guides what information the EPA requires from a person wanting to change its proposal during assessment.

In considering the request for consent, the EPA considered the:

- details of the proposed change,
- statement of the significance of the change; and
- rationale for the change.

Materials considered in making this decision

In determining whether to consent to the proponent changing the proposal the EPA has considered the following:

1. Woodside Energy Ltd, Proposed Browse to NWS Development, EPBC Act and EP Act Environmental Referrals, Supporting Document, November 2018.
2. Woodside Energy Ltd, Proposed Browse to NWS Project, Draft EIS/ERD, State Proposal area Section 43A Amendment (EPA 2191), 16 December 2019.
3. Woodside Energy Ltd, Draft EIS/ERD Proposed Browse to North West Shelf Project (EPBC 2018/8319, EPA 2191), November 2019.

Consideration

1. <u>Nature of the proposed change</u>

   The proposed change to the proposal that may have an impact on the environment is the:

   1. Increase in the number of drilling and completion activities of up to approximately 21 wells to 24 wells and an increase in drill cuttings discharges from 800 m^3 per well to 850 m^3 per well.
   2. Increase in the direct seabed disturbance from approximately 20 ha of seabed to approximately 0.31 km^2 (31 ha) (including 25% contingency).

   The changes to proposal have the potential to change the environmental impact to the following environmental factors:

   - Benthic Communities and Habitats,
   - Marine Environmental Quality,
   - Marine Fauna; and
   - Air Quality.

   Changes to Benthic Communities and Habitats, Marine Environmental Quality and Marine Fauna through the increase in direct seabed disturbance on 11 ha and the increase of 50 m^3 drill cuttings disposal per well is not determined to significantly increase impacts on the environment as the 'Maximum Level of Ecological Protection' (i.e. no change) is proposed for Scott Reef. Scott Reef is the single significant environmental value contained within the project area.

   Changes to Air Quality impacts through increased in CO_2-e emission arise from the installation, construction, operation and decommissioning of three additional wells. The total air emissions for the life of the project is estimated to be 0.4 Mt CO_2-e. The additional CO_2-e emissions is approximately 50,000 tCO_2-e as the total CO_2-e emissions over the life of the proposal in State waters. A change of 50,000 tCO_2-e over the life of the project is not determined as a significant increase in impact due to the relatively small increase in proportion and magnitude.

Additional text changes are proposed to the Key Proposal Characteristics Table to clarify and remove references to the proposal referral document (Woodside, Oct 2018). The additional text changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal included within the original referral document (Woodside, 2018). The text changes include:

Changes to Elements

- The addition of the text '*Temporary*' to the mooring of MODU,
- The amendment of water supply, power supply and vessel discharges operational elements description text from *'(construction vessels, MODU, inspection, Maintenance and repair (IMR) vessels, condensate tankers, supply boat operations, support vessel operations)*' to *'(installation vessels, inspection, maintenance and repair (IMR) vessels, MODU's and project vessels)*',
- The addition of an '*Air emissions – offshore activities'* element.

Changes to Description

- The addition of the text '*from vessels and MODU*' and '*putrescible organic waste*' to the Vessel discharge element description.
- The addition of the text '*Disposal of*' to the Drill cuttings and fluid discharges Description.
- The substitution of the text '*Control fluid discharged at the Christmas Trees*' in place of '*Discharge of control fluid'* describing the seabed control fluid discharges element.
- The reformatting and addition of the text '*using dynamic Positioning (DP)*', '*from helicopter movements from the MODU*' and '*from IMR activities*' to the underwater noise emissions element.
- The substitution of the text '*during well unloading. This occurs only during well installation or intervention for repairs.*' in place of '*FPSO facilities and'*
- The addition of the Air emissions description to include *'Air emissions resulting from power generation on project vessels and MODU'.*

Changes to the proposed authorised extent

- The amendment of the vessel discharges element extent reference '*Marine Orders 91 (Marine pollution prevention – Oil) 2006'* to *'Marine Orders 91 (Marine pollution prevention – Oil) 2014'.*
- The amendment of the drill cuttings and fluid discharges proposed authorised extent to include *'with up to approximately 24 wells to be developed in the State Proposal Area. Approximately 100-130 m3 well discharge fluid per well during well unloading.*' in place of '*are anticipated to be generated*' and '*Refer to Section 2.8.4 for further details'.*
- The addition of the following text '*water-based' and 'subsea'* is added to the extent description and '*Maximum volume of control fluid that will be released to the marine environment per manifold is 1,900 L per year of water based fluid containing approximately ~3% active ingredient (40–68 L of control fluid additive)'* is substituted in place of *'Refer to Section 2.8.3.4 for further details'* for the Seabed control fluid discharge element.
- The substitution of the text '*Noise related behavioural disturbance radius of up to approximately 10.5 km around drilling and installation activities. Noise related behavioural disturbance radius of up to approximately 500 m around*

subsea infrastructure during operations' in place of *'Noise frequencies associated with these activities are described in Section 2.8.6.2'* for the underwater noise emissions element.

- The deletion of the text *'Refer to Section 2.8.6.3 for further details.'* for the light emissions operational lighting element.
- The deletion of the text *'for operations and safety. Refer to Section 2.8.6.3 for further details.'* for the light emissions flaring element.
- The deletion of text '*As required*' in relation to light emissions flaring.

2. Stage of the assessment process

The proponent referred the proposal to the EPA on 15 October 2018. On 22 January 2019, the EPA decided to assess the proposal and set the level of assessment Environmental Review - Public Environmental Review. The Environmental Scoping Document was approved by the EPA on 8 July 2019. The proponent submitted an Environmental Impact Statement/Environmental Review (EIS/ERD) for adequacy review against the requirements of the approved Environmental Scoping document on 29 November 2019. The adequacy review is scheduled for decision 16 December 2019. The outcome of the adequacy review is proposed to reflect the outcome of this s 43A assessment.

3. Currency, relevance and reliability of the information, including submissions

The information contained within the Woodside Energy Ltd, Draft EIS/ERD Proposed Browse to North West Shelf Project (EPBC 2018/8319, EPA 2191), November 2019 is considered to be current, relevant and reliable on the following basis:

1. The proposal description contained in the EIS/ERD reflects the changed proposal.
2. The potential impacts for each factor (as relevant) described within the EIS/ERD reflects the potential impacts for each factor (as relevant) from the changed proposal.
3. The assessment of impacts for each factor (as relevant) described within the EIS/ERD reflects the changed proposal.
4. The description of mitigation for each factor (as relevant) including management actions described within the EIS/ERD reflects the changed proposal.
5. The predicted outcome for each factor (as relevant) described within the EIS/ERD reflects the changed proposal.

4. Community engagement

The initial referral was open for 7-day public comment from 21 November 2018 to 27 November 2018.

Community engagement has not been undertaken in relation to the change.

Public review will be undertaken during the public environmental review process for the EIS/ERD. The EIS/ERD will include the changes discussed in this Statement of Reasons.

5. Level of public concern

A high level of public concern relating to proposals in Browse Basin is expected.

Consideration of Whether the Change is Unlikely to Significantly Increase Any Impact that the Proposal May Have on the Environment

The following were considered:

a) Values, sensitivity and the quality of the environment which is likely to be impacted
The EPA Chairman's' determination identified the preliminary key environmental factors for the current proposal as:
- Benthic communities and Habitat,
- Marine Environmental Quality,
- Marine Fauna; and
- Air Quality.

Three additional wells, increase in 11 ha or direct seabed disturbance and the disposal of an additional 50 m^3 drill cuttings per well, does not cause additional key environmental factors to be considered for the purposes of the assessment.

b) Extent (intensity, duration, magnitude and geographic footprint) of the likely impacts

The potential Impact Significance Level for the key environmental factors, Benthic communities and Habitat, Marine Environmental Quality, Marine Fauna and Air Quality remains unchanged.

Changes to Benthic Communities and Habitats, Marine Environmental Quality and Marine Fauna through increased direct seabed disturbance on 11 ha and an additional 50 m^3 drill cuttings disposal per well is unlikely to significantly increase impacts on the environment because:

1. The referral footprint and well numbers were stated as 'approximate' specifically acknowledging refinement of the proposal was to occur. The increase of 3 wells from 21 to 24, the increase of 11 ha in disturbance and the additional 50 m^3 in drill cutting volume per well is proportionally considered within the scope of approximate.
2. a 'Maximum Level of Ecological Protection' (i.e. no change) is proposed for Scott Reef being the only significant environmental value contained within the project envelope.
3. No seabed disturbance of the Scott Reef shallow water benthic communities and habitats (less than 75 m water depth) will be undertaken.

Changes to Air Quality impacts through increased in CO_2-e emission arise from the installation, construction, operation, maintenance and decommissioning of three additional wells. A total of 0.4 Mt CO_2-e is identified as the total CO_2-e emissions over the life of the proposal in state waters for 24 wells. A potential change of 50,000 tCO_2-e is not determined to be a significant increase in impact due to the relatively small increase in proportion and magnitude.

c) Consequence of the likely impacts (or change)

The change to proposal does not alter the types and consequence of likely impacts on the environment as:

- a 'Maximum Level of Ecological Protection' is maintained for Scott Reef; and
- a potential change of 50,000 tCO_2-e is not determined to be a significant increase in impact due to the relatively small increase in proportion and magnitude.

d) Resilience of the environment to cope with the impacts or change

The resilience of the environment to cope remains unchanged from that of the original referral. The increase of three wells from 21 to 24, the increase of 11 ha in disturbance and the additional 50 m^3 in drill cutting volume per well is proportionally minor and is considered within the scope of approximate. The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal. The referral footprint and well numbers were stated as 'approximate' specifically acknowledging refinement of the proposal was to occur.

e) Cumulative impacts with other projects

No additional significance to cumulative impacts with other projects compared to those described in the Referral Supporting Document, and the EIS/ERD. The referral footprint and well numbers were stated as 'approximate' specifically acknowledging refinement of the proposal was to occur. The increase of three wells from 21 to 24, the increase of 11 ha in disturbance and the additional 50 m^3 in drill cutting volume per well is proportionally considered within the scope of approximate. The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal.

f) Connections and interactions between parts of the environment to inform holistic view of impacts of the whole environment

There is no change to the significance of potential connections and interactions of the environment due to the change to the original proposal. The referral footprint and well numbers were stated as 'approximate' specifically acknowledging refinement of the proposal was to occur. The increase of three

wells from 21 to 24, the increase of 11 ha in disturbance and the additional 50 m^3 in drill cutting volume per well is proportionally minor and is considered within the scope of approximate. The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal.

g) Level of confidence in the prediction of impacts and the success of proposed mitigation

The increase in wells, seabed disturbance and drill discharges in the proposal does not change the impacts described in the Referral Supporting Document, given the magnitude of impact change and mitigation proposed. Therefore, the level of confidence in the prediction of impacts and the success of the proposed mitigation remains unchanged from the referred proposal and the proposal described in the EIS/ERD. The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal.

h) Public interest about the likely effect of the proposal, if implemented, on the environment, and public information that informs the EPA's assessment

Submissions received during the referral public comment period indicate that greenhouse gas emissions, potential impacts on the Ningaloo Reef and the Kimberley Coast and impacts to air quality as a result of the proposal are a concern.

In summary, the EPA considers that the change is unlikely to significantly increase any impact the proposal may have on the environment primarily because:

- The changes to the Key Characteristics Table provide additional clarification and refinement to the definition and scope of the proposal included within the original referral document (Woodside, 2018).
- a 'Maximum Level of Ecological Protection is maintained for Scott Reef; and
- a potential change of 50,000 tCO_2-e is not determined to be a significant increase in impact due to the relatively small increase in proportion and magnitude.

Schedule 1

Change to Proposal

Summary of the Proposal

Proposal Summary	
Proposal Title	Proposed Browse to NWS Project (State component)
Proponent Name	Woodside Energy Ltd, as Operator for and on behalf of the Browse Joint Venture
Short Description	Drilling and completion, subsea installation, commissioning, operation, inspection, maintenance and repair and decommissioning of subsea wells and associated subsea infrastructure located in Western Australian State waters, to extract hydrocarbons from the Torosa reservoir, located approximately 425 km north of Broome and approximately 290 km off the Kimberley coast.

Location and proposed extent of physical and operational elements of the Proposal

Element	Description	Proposed Authorised Extent
Physical Elements		
Drilling and completion activities of up to approximately 24 wells	Installation and physical presence of infrastructure within indicative Figure 1: field layout	Approximately 0.31 km^2 of direct seabed disturbance (including 25% contingency).
Associated subsea infrastructure (Christmas trees, manifolds, flowlines, and umbilicals)		
Temporary mooring of MODU		
Seabed preparation and flowline stabilisation		

Element	Description	Proposed Authorised Extent
Operational Elements		
Water supply (installation vessels, Inspection, Maintenance and Repair (IMR) vessels, MODUs and project vessels)	Water requirements sourced either from seawater (reverse osmosis plant) or loaded at port.	Limited water requirements to support drilling and completion activities, subsea installation activities (e.g. potential hydrotest), vessel and MODU water needs and potentially also for decommissioning activities.
Power supply (installation vessels, IMR vessels, MODUs and project vessels)	Power generated on board vessels and MODU.	As required for operations and safety.
Vessel discharges (installation vessels, IMR vessels, MODU, and project vessels).	Discharges from vessels and MODU include treated sewage, drain waters, cooling water, sullage, putrescible organic waste and desalination brine.	Limited volumes discharged in accordance with International Convention for the Prevention of Pollution from Ships MARPOL 73/78 Annex I, as applied in Australia under the Commonwealth *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Part II Prevention of pollution from oil); Marine Orders 91 (Marine pollution prevention – Oil) 2014 as applicable to vessel class; *Pollution of Waters by Oil and Noxious Substance Act 1986.*
Drill cuttings and fluid discharges	Drill cuttings and drilling fluids.	Approximately 850 m^3 of cuttings per well, with up to approximately 24 wells to be developed in the State Proposal Area. Approximately 100-130 m^3 well discharge fluid per well during well unloading.
Hydrotest fluid discharges	Hydrotest fluids discharged at the seabed during integrity testing of the subsea infrastructure.	One-off discharges of up to approximately 950 m^3 of hydrotest fluid for the TRE flowline and up to approximately 250 m^3 at the TRF flowline.

Element	Description	Proposed Authorised Extent
Produced water	Low volumes of water that occurs naturally within the hydrocarbon-bearing geological formations.	Small volumes of formation water may result during well unloading activities by the MODU. These will be discharged directly from the MODU.
Subsea control fluid discharge	Control fluid discharged at the Christmas trees to maintain valve functionality.	Intermittent discharge of water-based hydraulic control fluid when subsea valves are actuate (~0.1 L). Maximum volume of control fluid that will be released to the marine environment per manifold is 1,900 L per year of water based fluid containing approximately ~3% active ingredient (40–68 L of control fluid additive).
Underwater noise emissions	Underwater noise: • generated during drilling, completion and installation activities (including vessel movements using Dynamic Positioning (DP), vertical seismic profiling (VSP) and distributed acoustic sensing (DAS) • generated from subsea infrastructure during operations • from piling activities for mooring installation for the MODU (note that this is unlikely to be required) • from installation vessels, IMR vessels, MODUs and project vessels • from helicopter movements from the MODU • from IMR activities.	Noise related behavioural disturbance radius of up to approximately 10.5 km around drilling and installation activities Noise related behavioural disturbance radius of up to approximately 500 m around subsea infrastructure during operations

Element	Description	Proposed Authorised Extent
Light emissions – operational lighting	Artificial light emitted by installation vessels, IMR vessels, MODUs and project vessels.	Limited to functional lighting at levels that provide a safe working environment for personnel.
Light emissions – flaring	Intermittent flaring from the MODU during well unloading. This occurs only during well installation or intervention for repairs.	
Air emissions – offshore activities	Air emissions resulting from power generation on project vessels and MODU.	

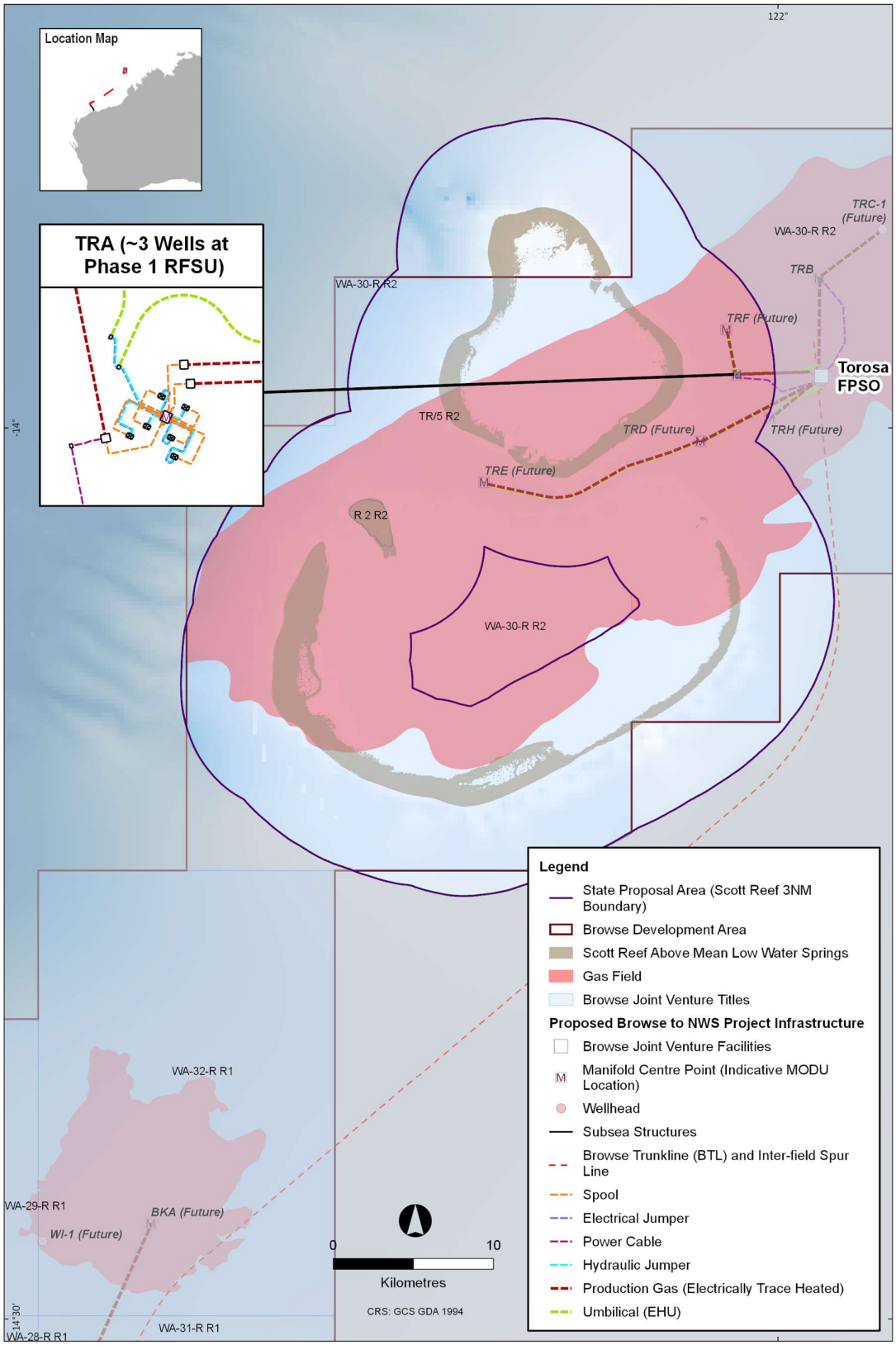


Figure 1 - Field Layout