Integrated Gas

ORIGIN BEETALOO EXPLORATION PROGRAM

Greenhouse Gas Abatement Plan

Rev	Date	Reason for issue	Reviewer/s	Consolidator	Approver
0	08/12/2021	Issued for use	RU	TN	MK

THE THREE WHATS

What can go wrong?
What could cause it to go wrong?
What can I do to prevent it?

Greenhouse Gas Abatement Plan

1. Introduction

Origin Energy B2 Pty Ltd (Origin) is a registered holder and the operator of Exploration Permit (EP) 98 and EP76, located in the Beetaloo sub-basin. Origin is proposing to submit a new Environmental Management Plan (EMP) covering the drilling, stimulation and testing of up to 4 exploration wells across the Amungee NW and Velkerri 76 S2 site (Figure 1). This activity is proposed to commence over the 2022 to 2024 period and will result in emissions that exceed 100,000tCO_2^{e-}in a given financial year. In accordance with the Northern Territory Greenhouse Gas Emissions Management for New and Expanding Large Emitters (referred to herein as the Large Emitters policy), Origin is required to submit a Greenhouse Gas Abatement Plan (GGAP) to the Department of Environment and Water Security (DEPWS) outlining how Origin's proposed emissions will be mitigated and managed during the proposed activity.

This document fulfils the GGAP requirements.

2. Project overview

Origin Energy B2 Pty Ltd (Origin) is planning to undertake petroleum exploration and appraisal works within the Beetaloo Sub-Basin, to fulfil its commitments under a 5-year tenure work program. Over the 2022 to 2024 period, Origin proposes to drill, stimulation and well testing 4 additional E&A wells to confirm the technical and commercial feasibility of the Velkerri shale.

The forward program is focused on collecting data form the Amungee NW and Velkerri 76 S2 locations. The Amungee NW site is located in the dry gas window, with recent data acquired from the existing Amungee NW-1H E&A well confirming better than originally determined shale gas prospectively. The Velkerri 76 S2 is located in the wet gas window, with indicative results collected during the drilling of Velkerri 76 S2-1 confirming the presence of wet gas.

This GGAP covers the proposed regulated activities required to enable Origin to drill, stimulate, test, maintain and decommission the proposed E&A wells as outlined in the Beetaloo sub-basin Amungee Multiwell EMP NT-2050-15-MP-041.

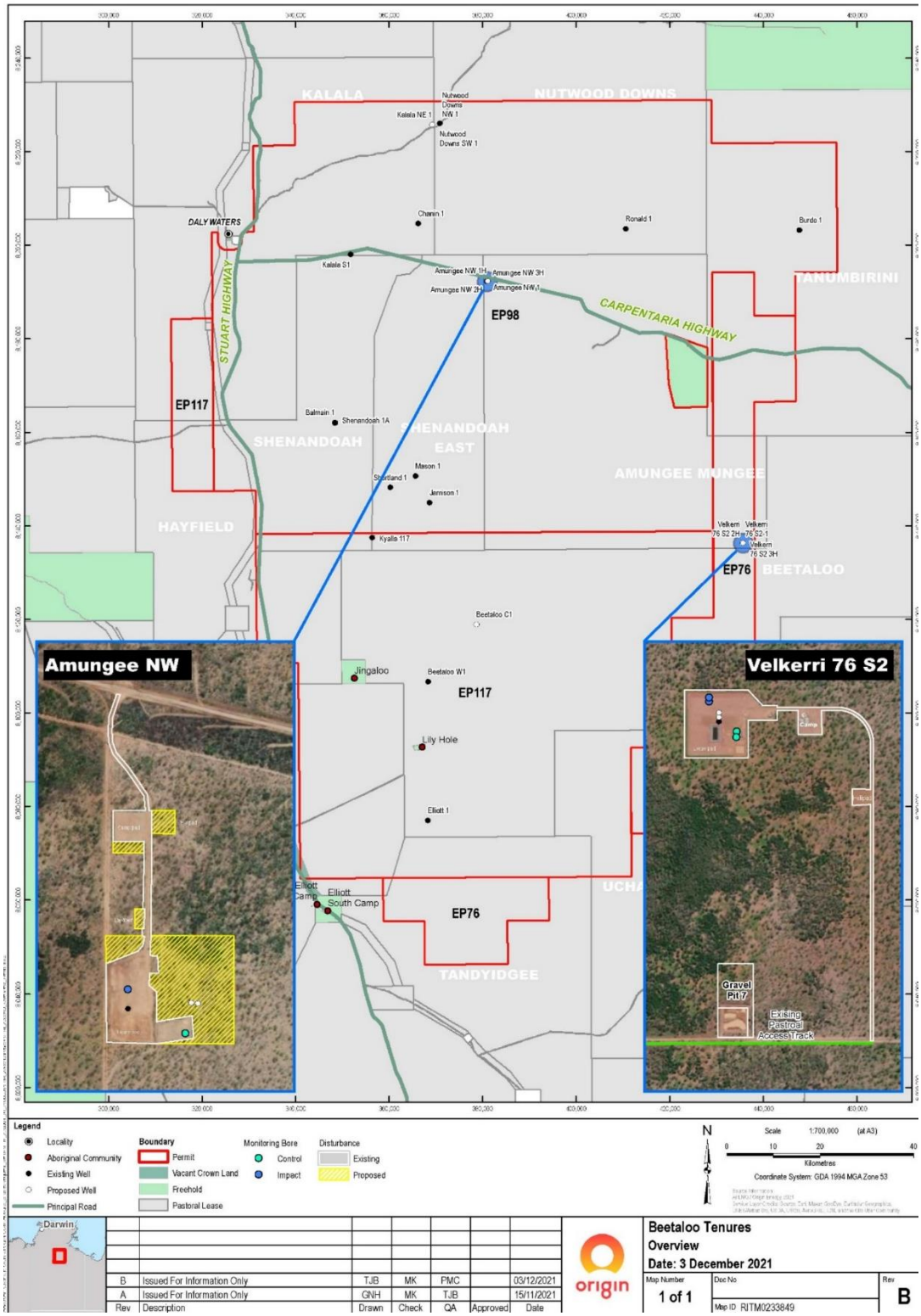

Figure 1 Location of the proposed Amungee NW and Velkerri 76 S2 locations

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3. Greenhous Gas Abatement Plan

The requirements of the GGAP are described extensively in Origin's Environmental Management Plan Beetaloo Sub-basin Amungee multiwell Drilling, Stimulation and Well Testing Program NT-2050-15-MP-041 and are summarised in Table 1: .

Table 1: GGAP summary

#	Requirement	Origin response
1	Brief description of the project	The scope of Origin's 2022-24 campaign summarised in section 3 of the Amungee multi-well EMP NT-2050-15-MP-041. This includes: - Drilling. hydraulic fracture stimulation and well testing of up to four new exploration and appraisal wells - two each at the existing Amungee NW and Velkerri 76 S2 sites - Expansion of the Amungee NW lease pad, camp pad and construction of a laydown area and helipad as well as installation of a 2km fence line - Well testing of the existing Amungee NW-1H and Velkerri 76 S2-1 wells - On-site wastewater and stormwater management - Flaring of gas and condensate/trucking of condensate where possible - Groundwater bore installation with groundwater extraction under WEL GRF 10285 - Setup of a temporary main camp (70-person) and drilling mini-camp (8-person) at each of the sites
2	An estimate of the project's net scope 1 emissions and how these emissions will contribute to the Territory's overall emissions profile	Scope 1 emissions are summarised in the Section 3.18 of the EMP and are provided in Appendix A of this document. The calculation breakdown is provided in Appendix B. Emissions are estimated to peak at 177,780 tCO_2e^- in the CY 2023 period. This includes emission from other proposed activities in the basin. Over 90% of the anticipated emissions are associated with flaring. Flaring of produced hydrocarbons is required under exploration tenure to evaluate the commercial viability of a resource as beneficial use of produced hydrocarbon is not permitted under the NT Petroleum Act.

#	Requirement	Origin response
		The potential emissions of Origin's activities represent between 0.22% and 0.86% of the total NT GHG emissions for 2019. Based upon the life cycle assessment analysis of a similar (but different) unconventional gas development in Australia completed by the Gas Industry Social and Environmental Research Alliance (GISERA) (Heinz 2019), the current net climate benefits of using natural gas in replacing coal for electricity generation is up to 50% less emissions (Heinz 2019). It is anticipated that a future shale gas development will be net zero scope 1 and 2 emissions, through the utilisation of world's best practice emission reduction technology, such as field electrification, flare minimisation strategies, use of renewable energy sources and procurement of emission offsets. Scope 3 emissions will also be reduced through investigation in low emission technologies, such as carbon capture and sequestration (CCS) enable blue ammonia/ hydrogen and electricity export. This would further reduce the emission intensity of a future gas developments and highlights the role of natural gas as a transition or 'firming' fuel to support the roll out of large-scale renewables in the future. This is reflected by Origin's ongoing commitment to invest in both renewable energy sources and firming fuels such as natural gas.
3	An estimate of the project's net scope 2 emissions and how these emissions will contribute to the Territory's overall emissions profile	There are no scope 2 emissions associated with Origin's Beetaloo exploration program.
4	An estimate of the project's scope 3 emissions	Scope 3 emissions are restricted to the emission associated with the material and supply chains associated with Origin's activities. The projects estimated Scope 3 emissions are 14,183 tCO_2e^{-}. These emissions are predominantly associated with the steel casing and cement which are generated outside of Australia.
5	An overarching long-term emissions target for the project that represents a meaningful contribution to the Territory's net zero emissions target	Origin's long-term target within the Beetaloo is to have a scope 1 and scope 2 neutral development.

#	Requirement	Origin response
6	Regular interim targets that establish a trajectory to achieving the overarching target and the methods that will be applied to achieve the interim targets	N/A- interim targets are not appropriate for exploration and appraisal projects.
7	An explanation of, and justification for, the proposed long-term and interim targets and how these will make a meaningful contribution to the Territory's emissions target	Interim targets are not appropriate for exploration projects due to the high degree of uncertainty, the requirement to test and produce hydrocarbons to determine technical and commercial viability of a potential development and the inability to beneficially re-use hydrocarbons due to legislative constraints within the NT. Interim and long term targets are more appropriate where produced hydrocarbons have the ability to be utilised (i.e. through use or sale of product to minimise flaring) or where a project is in the operating phase where emission certainty is higher.
8	A demonstration that all reasonable and practical measures have been applied to avoid and mitigate emissions through best practice design, process, technology and management	Greenhouse gas emissions during well testing are required to be generated to prove the commerciality of a potential resource. Well testing data is utilised to generate a wells Estimated Ultimate Recovery (EUR), which determines how many wells are required to be drilled and how often replacement wells are required to be brought online to maintain production levels (i.e. as wells decline over time). The minimum required well testing (or Piloting) duration for unconventional gas development generally exceeds 2 years (730days) per geographic region. The more data on production, the lower the commercial risk of a development. This duration is based upon Origin's current experience in appraising and developing unconventional gas assets within Australia. The mitigation of emissions has been undertaken through: • **Minimising well test durations:** The proposed well testing duration of the Amungee Multi-well EMP is 180 days, significantly lower than the 730day period typically utilised. • **Utilisation of the best practice emission management controls** outlined in the code of Practice: Onshore petroleum activities in the Northern Territory (Code of Practice) • **Inability to beneficially re-use hydrocarbons under Exploration Permits:** Origin is currently legally not permitted to beneficially re-use produced hydrocarbons under NT law, which

#	Requirement	Origin response
		has resulted in flaring being the only technically feasible hydrocarbon management approach.
9	A description of all strategies proposed to avoid, mitigate and offset the project's scope 1 and scope 2 emissions	As per the EMP Section 3.18, greenhouse gas emissions will be mitigated trough the adoption of the mandatory requirements in the Code of Practice which requires - The development and implementation of a methane emission management plan (D5.1) - Restrictions on venting (D.5.9) - Use of a Reduced Emissions Completion (REC) (D.5.9) - Implementation on a routine Leak Detection and Repair (LDAR) program (D.5.3.) - Pressure and gas testing all in service equipment to ensure any leaks are identified and fixed prior to commission (D.5.9) - Flanges, valves and fittings are all API compliant and gas tight (D.5.9) - Equipment is appropriately sized and regularly maintained to minimise diesel wastage (D.5.9) - Routine site inspections and assurance undertaken to ensure equipment is maintained and operated as per manufacturers requirements.
10	Flexibility to review mitigation actions and abatement plans so they can be improved and updated to enable further emissions reductions going forward	Origin will continue to look for opportunities to mitigate carbon emissions throughout the project. Given the mandatory controls outlined in the Code of Practice and inability to beneficially re-use produced hydrocarbons, additional abatement measures are considered limited.
11	A schedule for periodic public reporting on implementation and progress against the interim and overarching targets and any changes that have had to be made to the strategies proposed in the GGAP to deliver on the targets	Origin is required under condition D.6.2 of the Code of Practice to report its Greenhouse Gas emissions to the Department of Environment, Parks and Water Security on an annual basis. During this report, Origin assesses the level of greenhouse gas emissions against its EMP estimated levels to demonstrate it has met it has met its performance standards.
12	Information about the project's obligations under the Australian Government's National	Where Origin exceeds 100KtCO2 in a reporting period (financial year), Origin will trigger the NGERS reporting threshold and safeguard mechanism. A baseline

#	Requirement	Origin response
	Greenhouse and Energy Reporting Act 2007 and any expected baseline determinations	emission intensity will be generated for Origin's activities.
13	A timetable for review that is considerate of the project's lifespan and the identified interim and overarching targets.	The emissions associated with the project will be reviewed annually.

4. References

Heinz Schandl, Tim Baynes, Nawshad Haque, Damian Barrett and Arne Geschke (2019). Final Report for Final Report for GISERA Project G2 - Whole of Life Greenhouse Gas Emissions Assessment of a Coal Seam Gas to Liquefied Natural Gas Project in the Surat Basin, Queensland, Australia. CSIRO, Australia

Appendix A Origin project scope 1 emissions estimate

Table 2 Summary of Origin's scope 1 emissions estimates from 2022 to 2024.

Activity	2022	2023	2024	Comments
Approved EMPs				
Kyalla 117 N2 water bores	0	0	0	No material emissions are anticipated
Kyalla 117 N2 civil construction	0	0	0	No material emissions are anticipated
Kyalla 117 N2-1H drilling, stimulation and well testing[1]	46	46	46	No material emissions are anticipated
Kyalla 117 N2 multiwell EMP	0	0	0	No material emissions are anticipated
Amungee NW-1 EMP	46	46	46	No material emissions are anticipated
Beetaloo w-1 EMP	46	46	46	No material emissions are anticipated
Velkerri 76 S2 water bores	0	0	0	No material emissions are anticipated
Velkerri 76 S2 civil construction	0	0	0	No material emissions are anticipated
Velkerri 76 S2-1 drilling, stimulation and well testing [2]	1,945	0	0	Based on revised vertical stimulation and 30 day well test @0.3TJ/day
Proposed Amungee multi-well EMP				
4 total E&A wells with associated water bores, civil construction and drilling, stimulation and 3 months well testing (this assumes ongoing E&A success)	35,168	177,596	60,266	The majority of activities from 2022-24 will be covered under this EMP.
Potential (neither approved, or proposed, but potential)				

[1] Assumes a total of 9 months of well test
[2] Based on revised vertical stimulation and 30 day well test @0.3TJ/day

Activity	2022	2023	2024	Comments
EMP for proposed seismic surveys and well maintenance	8,046	46	46	No other wells are currently proposed. Kalala S1 maintenance emissions included for
Total annual emissions	**45,297**	**177,780**	**60,450**	

Appendix B Scope 1 estimate calculations

Table 3 Origin's 2022-24 Scope 1 emission estimates

Activity	Anticipated volume	Activity emissions (2022-2024) tCO2e	Estimate methodology and assumptions
Amungee NW Multiwell			
Diesel combustion - transport	118KL of diesel per well	640	Diesel estimated using forecasted usage estimates multiplied by NGERS emission factor from NGER Determination: Division 2.4.2 Method 1 emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils or greases, section 2.41 Method 1—emissions of carbon dioxide, methane and nitrous oxide and Part 3—Fuel combustion—liquid fuels and certain petroleum-based products for stationary energy purposes item 40: Energy Content Factor (GJ/kill) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel N_2O Factor 0.2 kgCO_2-e/ GJ of diesel
Diesel combustion - horizontal drilling	11,200 KL of diesel per well per day	4,188	Diesel estimated using forecasted drilling estimates multiplied by NGERS emission factor from NGER Determination: Division 2.4.2 Method 1 emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils or greases, section 2.41 Method 1—emissions of carbon dioxide, methane and nitrous oxide and Part 3—Fuel combustion—liquid fuels and certain petroleum-based products for stationary energy purposes item 40: Energy Content Factor (GJ/kill) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel N_2O Factor 0.2 kgCO_2-e/ GJ of diesel
Diesel combustion- Drilling and stimulation camp	0.5 KL per day	366	Diesel consumption estimated from historical data and multiplied by NGERS emission factor from NGER Determination: Division 2.4.2 Method 1 emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils or greases, section 2.41 Method 1—emissions of carbon dioxide, methane and nitrous oxide and Part 3—Fuel combustion—liquid fuels and certain petroleum-based products for stationary energy purposes item 40: Energy Content Factor (GJ/kill) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel

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Activity	Anticipated volume	Activity emissions (2022-2024) tCO2e	Estimate methodology and assumptions
			N_2O Factor 0.2 $kgCO_2$-e/ GJ of diesel
Fugitive methane emissions – drill cuttings	0.188 tonnes of methane per well	11	Estimate by engineer based on gas saturation and core volume multiplied by NGERS Global Warming Potential (GWP) of 28 tCO_2e/tCH_4.
Fugitive emissions – completion (venting)	51.8tonnes of methane per completion	2,901	2 completion days anticipated per well. Table 5-23 Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry; American Petroleum Institute (API), 2009 NGERS completion factor of 25.9 tonnes of methane per day multiple by NGERS Global Warming Potential (GWP) of $25tCO_2e/tCH_4$
Fugitive emission-wastewater storage	11.25 ML of flowback per well	69	11.25ML/ well wastewater (assumes 25 stages, 1.5ML per stage and a recovery of 30%). Emissions multiplied by Table 5-10 produced saltwater tank methane flashing emission factors - Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry; American Petroleum Institute (API), 2009 emission factor of 0.11tCH4/ML (assuming 2% salinity, 250 psi separator pressure) multiplied by NGERS Global Warming Potential (GWP) of $28tCO_2e/tCH_4$. Assumes 50% of injected flowback is returned to the surface.
Well testing-flared natural gas emissions	1.2TJ per day of natural gas for the existing Amungee NW-1H E&A well (21.02 tCH4 per day) 5 TJ per day of natural gas per additional horizontal E&A well (175.57 tCH4 per day)	131,046	Flared estimate using forecasted P50 success case production rates multiplied by NGER Determination: Subdivision 3.3.2.2—Oil or gas exploration and development (emissions that are flared) section 3.44 Method 1—oil or gas exploration and development item 1: CO_2 Factor 2.8 tCO_2-e/ t unprocessed gas CH_4 Factor 0.933 tCO_2-e/ t unprocessed gas N_2O Factor 0.026 tCO_2-e/ t unprocessed gas
Well testing-stationary sources (diesel combustion)	500L per day	732	Diesel consumption estimated from historical data and multiplied by NGERS emission factor from NGER Determination: Division 2.4.2 Method 1 emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils or greases, section 2.41 Method 1—emissions of carbon dioxide, methane and nitrous oxide and Part 3—Fuel combustion—liquid fuels and

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			certain petroleum-based products for stationary energy purposes item 40: Energy Content Factor (GJ/kill) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel N_2O Factor 0.2 kgCO_2-e/ GJ of diesel
Land clearing for site preparation	10 ha land clearing (77t CO2e/ha)	770	Assume 10 ha of land clearing for well pad extensions and 90 ha of land clearing in CY22 for seismic exploration activities. TAGG 2013 Appendix E vegetation clearing methodology, Table 6, assumed maximum potential biomass class = 1.
Well stimulation – stationary sources		1,416	Diesel consumption estimated from historical data and multiplied by NGERS emission factor from NGER Determination: Division 2.4.2 Method 1 emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils or greases, section 2.41 Method 1—emissions of carbon dioxide, methane and nitrous oxide and Part 3—Fuel combustion—liquid fuels and certain petroleum-based products for stationary energy purposes item 40: Energy Content Factor (GJ/kill) 38.6 CO2 Factor 69.9 kgCO2-e/ GJ of diesel CH4 Factor 0.1 kgO2-e/ GJ of diesel N2O Factor 0.2 kgCO2-e/ GJ of diesel
Velkerri 76 S2 Multiwell			
Diesel combustion - transport	118KL of diesel per well	640	Diesel estimated using forecasted usage estimates multiplied by NGERS emission factor from NGER Determination: Division 2.4.2 Method 1 emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils or greases, section 2.41 Method 1—emissions of carbon dioxide, methane and nitrous oxide and Part 3—Fuel combustion—liquid fuels and certain petroleum-based products for stationary energy purposes item 40: Energy Content Factor (GJ/kill) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel N_2O Factor 0.2 kgCO_2-e/ GJ of diesel

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Diesel combustion-camps (drilling and stimulation)	0.5 KL per day	366	Diesel consumption estimated from historical data, assuming 270 days per CY and multiplied by NGERS emission factor from NGER Determination: Division 2.4.2 Method 1 emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils or greases, section 2.41 Method 1—emissions of carbon dioxide, methane and nitrous oxide and Part 3—Fuel combustion—liquid fuels and certain petroleum-based products for stationary energy purposes item 40: Energy Content Factor (GJ/kill) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel N_2O Factor 0.2 kgCO_2-e/ GJ of diesel
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Fugitive emissions – completion (venting)	51.8tonnes of methane per completion	2,901	2 completion days anticipated per well. Table 5-23 Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry; American Petroleum Institute (API), 2009 NGERS completion factor of 25.9 tonnes of methane per day multiple by NGERS Global Warming Potential (GWP) of $25tCO_2e/tCH_4$
Fugitive emission-wastewater storage	11.25 ML of flowback per well	69	11.25ML/ well wastewater (assumes 25 stages, 1.5ML per stage and a recovery of 30%). Emissions multiplied by Table 5-10 produced saltwater tank methane flashing emission factors - Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry; American Petroleum Institute (API), 2009 emission factor of 0.11tCH4/ML (assuming 2% salinity, 250 psi separator pressure)

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Activity	Anticipated volume	Activity emissions (2022-2024) tCO2e	Estimate methodology and assumptions
			multiplied by NGERS Global Warming Potential (GWP) of 28tCO_2e/tCH_4. Assumes 50% of injected flowback is returned to the surface.
Well testing-flared natural gas emissions	0.3TJ per day of natural gas per vertical E&A well (5.27 tCH4 per day) 5 TJ per day of natural gas per horizontal E&A well (175.57 tCH4 per day)	120,515	Flared estimate using forecasted P50 success case production rates multiplied by NGER Determination: Subdivision 3.3.2.2—Oil or gas exploration and development (emissions that are flared) section 3.44 Method 1—oil or gas exploration and development item 1: CO_2 Factor 2.8 tCO_2-e/ t unprocessed gas CH_4 Factor 0.933 tCO_2-e/ t unprocessed gas N_2O Factor 0.026 tCO_2-e/ t unprocessed gas
Well testing-stationary sources (diesel combustion)	500L per day	732	Diesel consumption estimated from historical data and multiplied by NGERS emission factor from NGER Determination: Division 2.4.2 Method 1 emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils or greases, section 2.41 Method 1—emissions of carbon dioxide, methane and nitrous oxide and Part 3—Fuel combustion—liquid fuels and certain petroleum-based products for stationary energy purposes item 40: Energy Content Factor (GJ/kill) 38.6 CO_2 Factor 69.9 $kgCO_2$-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel N_2O Factor 0.2 $kgCO_2$-e/ GJ of diesel
Well stimulation – stationary sources		1,416	Diesel consumption estimated from historical data and multiplied by NGERS emission factor from NGER Determination: Division 2.4.2 Method 1 emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils or greases, section 2.41 Method 1—emissions of carbon dioxide, methane and nitrous oxide and Part 3—Fuel combustion—liquid fuels and certain petroleum-based products for stationary energy purposes item 40: Energy Content Factor (GJ/kill) 38.6 CO2 Factor 69.9 kgCO2-e/ GJ of diesel CH4 Factor 0.1 kgO2-e/ GJ of diesel N2O Factor 0.2 kgCO2-e/ GJ of diesel

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Activity	Anticipated volume	Activity emissions (2022-2024) tCO2e	Estimate methodology and assumptions
Kyalla 117 N2 Maintenance			
Well maintenance (diesel combustion)	1KL/year	9	Diesel estimate using historic well maintenance multiplied by Table 3: Fuel combustion emission factors— liquid fuels and certain petroleum-based products for stationary energy purposes, Part 3 of Schedule 1 of the NGER Determination (July 2020): Energy Content Factor (GJ/kL) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel N_2O Factor 0.2 kgCO_2- e/ GJ of diesel
Transportation emissions (diesel combustion)	15kl/year	129	Diesel usage multiplied by NGERS emission factor from Table 4: Fuel combustion emission factors—fuels used for transport energy purpose, Division 4.2, Part 4 of Schedule 1 of the NGER Determination (July 2020): Energy Content Factor (GJ/kL) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.01 kgO_2-e/ GJ of diesel N_2O Factor 0.5 kgCO_2-e/ GJ of diesel
Beetaloo W-1 Maintenance			
Well maintenance (diesel combustion)	1KL/year	9	Diesel usage multiplied by NGERS emission factor from Table 4: Fuel combustion emission factors—fuels used for transport energy purpose, Division 4.2, Part 4 of Schedule 1 of the NGER Determination (July 2020): Energy Content Factor (GJ/kL) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.01 kgO_2-e/ GJ of diesel N_2O Factor 0.5 kgCO_2-e/ GJ of diesel
Transportation emissions (diesel combustion)	15kl/year	129	Diesel estimate using historic well maintenance multiplied by Table 3: Fuel combustion emission factors— liquid fuels and certain petroleum-based products for stationary energy purposes, Part 3 of Schedule 1 of the NGER Determination (July 2020): Energy Content Factor (GJ/kL) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel N_2O Factor 0.2 kgCO_2- e/ GJ of diesel
Amungee NW 1H Annual Maintenance			

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Activity	Anticipated volume	Activity emissions (2022-2024) tCO2e	Estimate methodology and assumptions
Well maintenance (diesel combustion)	1KL/year	9	Diesel estimate using historic well maintenance multiplied by Table 3: Fuel combustion emission factors— liquid fuels and certain petroleum-based products for stationary energy purposes, Part 3 of Schedule 1 of the NGER Determination (July 2020): Energy Content Factor (GJ/kL) 38.6 CO_2 Factor 69.9 kgCO_2-e/ GJ of diesel CH_4 Factor 0.1 kgO_2-e/ GJ of diesel N_2O Factor 0.2 kgCO_2- e/ GJ of diesel
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Total		286,752	