

**BEETALOO SUB-BASIN MULTI-WELL DRILLING,
STIMULATION AND WELL TESTING PROGRAM
EP 98, EP 76 (ORI10-3)
Annual Environment Performance Report (AEPR)**

Tamboran B2 Pty Ltd

Document Details

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Interest holder details	Tamboran B2 Pty Ltd ABN 42 105 431 525
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Signature and certification

I hereby declare that the information provided in this annual environment performance report and accompanying documents is to the best of my/our knowledge, true and correct.	
Signature	<i>Matt Kernke</i>
Name	Matt Kernke
Position	Environment and Approvals Manager
Date	18 August 2023

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1. INTRODUCTION

The Northern Territory (NT) Petroleum (Environment) Regulations 2016 (the Regulations) include a requirement¹ for the interest holder to provide a report to the Minister on an annual basis that outlines the environmental performance of regulated activities. The Annual Environment Performance Report (AEPR) must include sufficient information to allow the Minister to assess whether the interest holder has met the environmental outcomes and environmental performance standards included in the approved Environment Management Plan (EMP). The report is to consider information required to be recorded, monitored or reported under the Regulations and any other law in force in the NT related to conduct of the regulated activity.

This AEPR covers the regulated activities approved under:

- *Beetaloo Sub-Basin Multi-Well Drilling, Stimulation and Well Testing Program EP 98, EP 76 EMP (ORI10.3)*, approved 19 May 2022.
- Regulation 22 *Beetaloo Sub-Basin Multi-Well Drilling, Stimulation and Well Testing Program EP 98, EP 76 EMP (ORI10.3.1)*, submitted 16 August 2022, for the following modifications:
 - Relocation of groundwater bore for the future Amungee NW2 well pad.
 - An additional bore on the future NW2 well pad.
 - 2 ha of clearing to establish the 2 groundwater bores with no increase to overall clearing for the regulated activity.
- Regulation 22 *Beetaloo Sub-Basin Multi-Well Drilling, Stimulation and Well Testing Program EP 98, EP 76 EMP (ORI10.3.2)*, submitted 25 January 2023, for the following modifications:
 - Addition of a new hydraulic stimulation fluid system and chemical risk assessment.

The AEPR covers the reporting period of the 20 May 2022 – 19 May 2023, as reported by Tamboran B2 Pty Ltd (Tamboran).

1.1 Acronyms and abbreviations

Table 1 Summary of acronyms and abbreviations

Acronym	Definition
AAPA	Aboriginal Areas Protection Authority
AEPR	Annual Environment Performance Report
Code	Code of Practice: Onshore Petroleum Activities in the Northern Territory
DEPWS	Department of Environment, Parks and Water Security
DITT	Department of Industry, Tourism and Trade
EMP	Environment management plan
ha	hectare
NT	Northern Territory
Regulations	Petroleum (Environment) Regulations 2016

¹ Petroleum (Environment) Regulations 2016 (NT) sch 1, item 11.

1.2 Background

The regulated activities that have been assessed under this AEPR are those covered under the *Beetaloo Sub-Basin Multi-Well Drilling, Stimulation and Well Testing Program EP 98, EP 76 EMP (ORI10.3)*, approved 19 May 2022 during the reporting period 20 May 2022 – 19 May 2023. Activities performed on the Amungee NW site (EP 98) during the period include:

- Expansion of the lease pad from 3.56 ha to 10 ha to accommodate the new exploration and appraisal (E&A) wells and anticipated freshwater and wastewater storage.
- Expansion of the existing camp pad from 0.9 ha to 1.2 ha.
- Construction of a helipad (1.0 ha).
- Construction of a 20 m x 2 km fence line and firebreak around the Amungee NW site (~ 4 ha).
- Drilling and hydraulic fracturing of the Amungee NW-2H E&A well.
- Wastewater storage and management.

There were no regulated activities undertaken on the Velkerri 76 S2 site, during the reporting period.

The location of the regulated activities is provided in **Error! Reference source not found.** (Amungee NW) and Figure 2 (Velkerri).

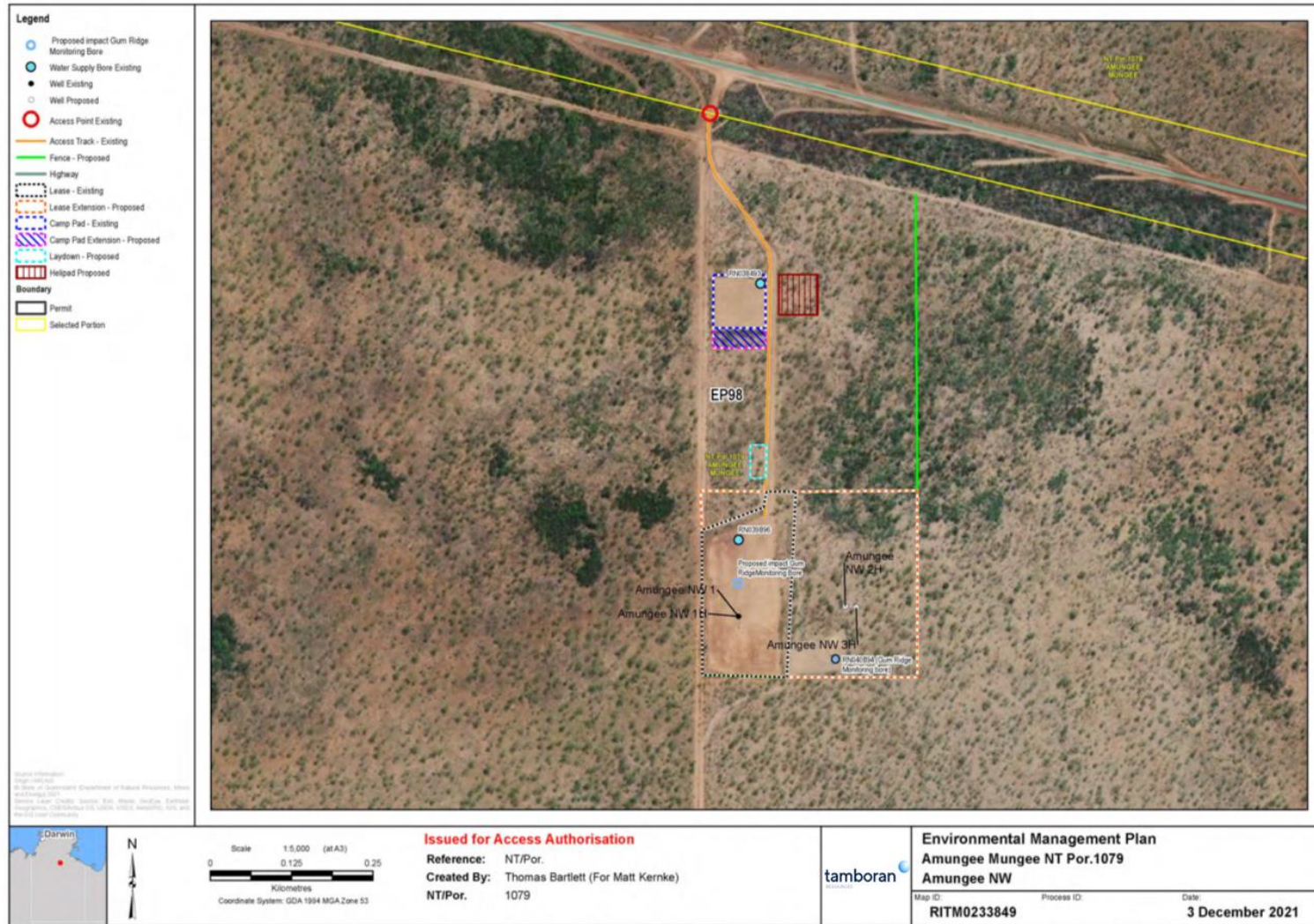


Figure 1 Existing Amungee NW site showing location of the extended lease pad, camp pad, laydown yard, helipad, fence/firebreak and monitoring bore

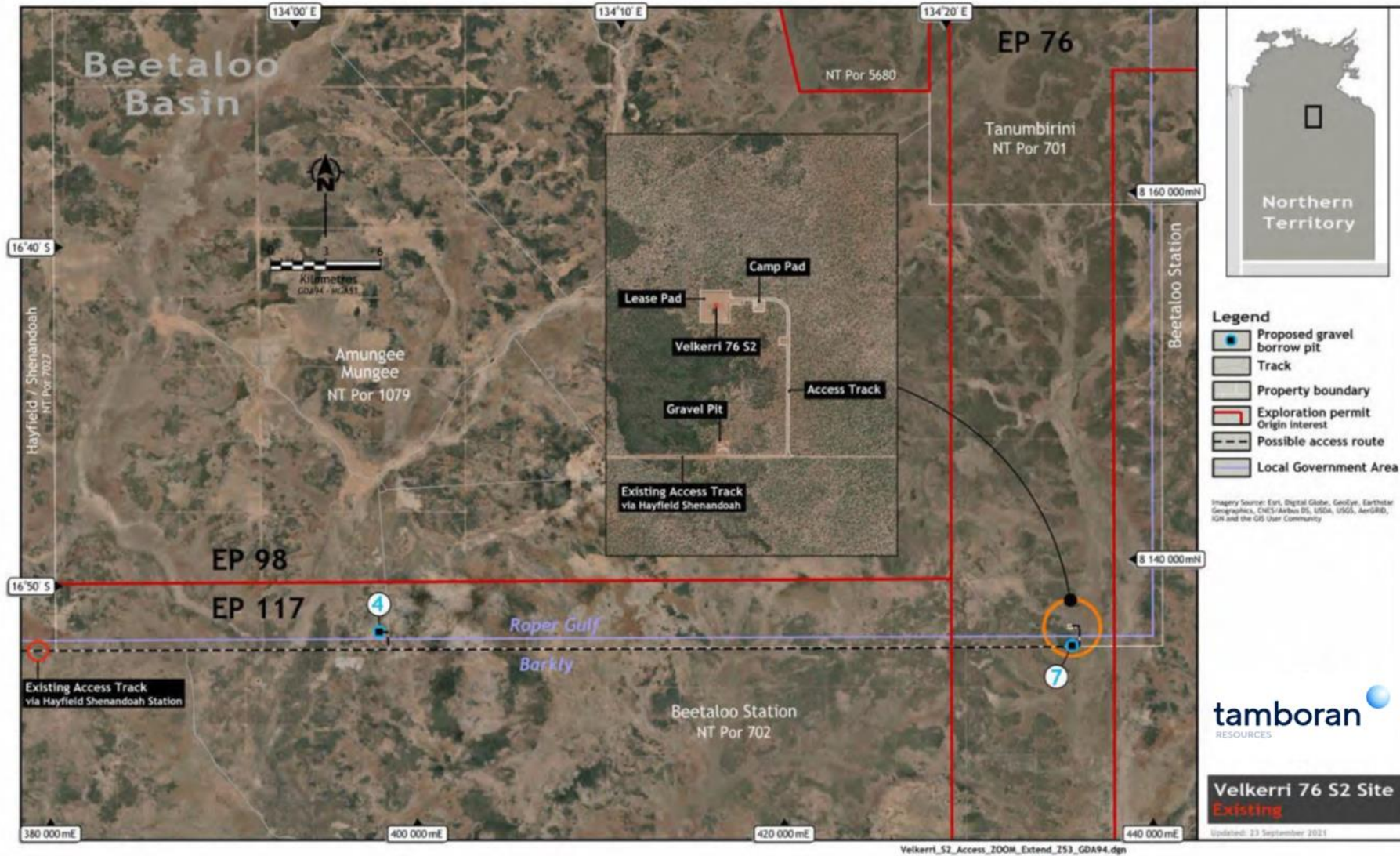


Figure 2 Existing Velkerri 76 S2 NW site including existing lease pad upon which the proposed wells will be located

1.3 Contents of performance report

This AEPR describes the environmental performance of the interest holder by evaluation of the following:

1. Compliance with Ministerial approval conditions, for the EMP.
2. Compliance with each environmental outcome and environmental performance standard within the approved EMP.
3. Compliance with reporting requirements in accordance with the Code and Regulations.
4. All recordable and reportable incidents, including root cause analysis and related corrective actions to prevent re-occurrence.
5. Findings of all regulatory inspections and audits and related actions to address any findings.

1.4 Assessment of compliance

Table 2 shows the compliance status indicators used in this AEPR which have been defined by the Department of Environment, Parks and Water Security (DEPWS).

Table 2 Compliance descriptors

Indicator	Description
Compliant	Compliant with requirement for entire 12-month reporting period
Not Compliant	Interest holder did not comply with the requirement during the reporting period
Not Applicable	Requirement not applicable during the reporting period

1.5 Evidence of compliance

The following sources of evidence are used to demonstrate compliance:

1. Internal monitoring of compliance by the interest holder.
2. Outcomes from regulatory inspection/s conducted by the DEPWS, Petroleum Operations.
3. Recordable and reportable incident reports submitted to DEPWS Petroleum Operations.
4. Reports provided to DEPWS, DITT and other government agencies.

2. DEMONSTRATION OF COMPLIANCE

2.1 Ministerial condition compliance

Table 3 demonstrates Tamboran's compliance with Ministerial EMP approval conditions.

Table 3 Ministerial condition summary table

No	Ministerial condition	Compliance Status	Evidence
1	<p>i. The interest holder must submit to the Department of Environment, Parks and Water Security (DEPWS), via Onshoregas.DEPWS@nt.gov.au the following:</p> <p>Notification of the commencement of hydraulic fracturing activities prior to commencement.</p>	Compliant	<ul style="list-style-type: none"> The interest holder² notified DEPWS on 7 July 2022 of the intent to commence construction in accordance with the approved EMP.
	<p>ii. An updated timetable for the regulated activity that is to be provided on the last day of each quarter (being 31 March, 30 June, 30 September and 31 December each year), that identifies activities completed in the current quarter and:</p> <ul style="list-style-type: none"> regulated activities in the next quarter, including duration; activities in the next quarter based on commitments in the EMP relevant to the stage of the activity, including duration; due dates for satisfaction of Ministerial approval conditions in the next quarter; and due dates for regulatory reporting in the next quarter. 	Compliant	<p>Monthly reports were provided to DEPWS on the following dates:</p> <ul style="list-style-type: none"> 20 June 2022 20 July 2022 19 August 2022 21 September 2022 20 October 2022 24 November 2022 21 December 2022 27 January 2023 20 February 2023 23 March 2023 22 April 2023 22 May 2023
	<p>iii. During civil works (and noting civil works is taken to include any type of earth moving, land clearing, installation of gravel pits, establishment of well pads, establishment of access tracks), weekly reports indicating:</p> <ul style="list-style-type: none"> the status and progress of vegetation clearing and civil works at each location the activity is conducted; any fires potentially threatening the activity from external or internal sources; the outcome of inspections of erosion and sediment control measures, and corrective actions taken; and 	Compliant	<ul style="list-style-type: none"> The interest holder³ supplied civil daily reporting to DEPWS on 20 July 2022 for the period 12/07 – 18/07. The interest holder provided a revised rehabilitation plan for the site, including shapefiles to DEPWS on 23 November 2022.⁴ As outlined in that advice: <ul style="list-style-type: none"> Rehabilitation has not commenced on the Amungee NW site. The revised surface disturbance table is a comparison between EMP

² NOTE: This advice was submitted by Origin Energy, the interest holder at the time.

³ Ibid.

⁴ Revised rehabilitation plan titled *Exploration Permit 98 Rehabilitation Management Plan Rev 4.0 Amungee NW Lease*, submitted with AEPR for the *Beetaloo Sub-Basin Amungee NW-1H Exploration Permit (EP) 98 EMP (OR17-2)*, on 23 November 2022.

No	Ministerial condition	Compliance Status	Evidence
	<ul style="list-style-type: none"> the outcome of inspections and risk assessments for determining suitability of use of unsealed roads by any vehicle or machinery other than a light vehicle in the wet season. 		<p>(proposed) vs actual cleared footprint</p> <ul style="list-style-type: none"> The success criteria remain unchanged. The rehabilitation plan for the Amungee NW site was assessed and accepted by DEPWS, 29 November 2022. No fires recorded in the vicinity of the regulated activities on EP 98 or EP 76 for 2022 – 23.⁵ Daily drilling reports were provided to DEPWS, which also included general site inspection information.
iv	<p>During drilling, daily on-site reports to be consolidated and provided weekly, indicating:</p> <ul style="list-style-type: none"> Status and progress of drilling at each location; Freeboard available in drill cutting pits (in cm); and The outcome of general site inspections relevant to drilling and waste, and corrective actions taken. 	Compliant	<ul style="list-style-type: none"> The interest holder notified DEPWS on 9 November 2022, of imminent spudding of Amungee NW-2H E&A well and provided ongoing daily reports. Daily drilling reports were provided to the DEPWS, which also included general site inspection information. Weekly fluids management reporting continues to be provided to DEPWS. Routine site inspections completed; 1 recordable incident reported in Q2 2023.
v	<p>During hydraulic fracturing and flowback, weekly reports indicating:</p> <ul style="list-style-type: none"> status and progress of hydraulic fracturing weekly measurement of stored volume (in ML) and freeboard available (in cm) of wastewater storage tanks, unless operated in the wet season, during which it must be measured daily; and the outcome of general site inspections relevant to hydraulic fracturing and waste, and corrective actions taken. 	Compliant	<ul style="list-style-type: none"> Daily drilling reports were provided to the DEPWS. Weekly fluids management reporting continues to be provided to DEPWS.

⁵ 10 Year Fire Histories Across Northern Australia and WA (WA Rangelands, All NT, QLD Rangelands), NAFI website: <https://www.firenorth.org.au/nafi3/>.

No	Ministerial condition	Compliance Status	Evidence
vi	<p>During the wet season, weekly reports indicating:</p> <ul style="list-style-type: none"> the outcome of inspections of erosion and sediment control measures, and corrective actions taken; the outcome of daily inspections of any secondary containment in use, and corrective actions taken; any halt to the regulated activity due to wet season conditions; and daily measurements of freeboard available in drill cutting pits and wastewater treatment tanks (in cm) whenever operational. 	Compliant	<ul style="list-style-type: none"> Weekly fluids management reporting continues to be provided to DEPWS.
vii	<p>For avoidance of doubt, if wastewater is present in tanks or drill cutting pits contain waste drill fluids and cuttings, these are considered to be operational. Reports must continue to be provided as per parts iv and v above, irrespective of whether there is manned activity occurring on site if the wastewater infrastructure is operational.</p>	Compliant	<p>Refer interest holder evidence provided against conditions 1iv and 1vi, above.</p>
viii	<p>In the event that multiple regulated activities under the EMP are being conducted concurrently, the weekly submission of consolidated daily reports may be further consolidated to a single submission, but must clearly identify the locations and activities to which the information pertains, in relation to each item listed in conditions iii to v above, inclusive.</p>	Compliant	<p>This AEPR covers regulated activities undertaken on EP 98 in accordance with the approved EMP. No regulated activities were undertaken on EP 76.</p>
2	<p>The interest holder must provide an annual report to DEPWS, via Onshoregas.DEPWS@nt.gov.au, on its environmental performance, in accordance with item 11(1)(b) in schedule 1 of the Petroleum (Environment) Regulations 2016 (NT). With respect to the reports required to submitted in accordance with item 11(1)(b) in schedule 1 of the Petroleum (Environment) Regulations 2016 (NT):</p> <ol style="list-style-type: none"> The first report must cover the 12 month period from the date of the approval, and be provided within 3 calendar months of the end of the reporting period. Each report must align with the template and Guideline prepared 	Compliant	<ul style="list-style-type: none"> This AEPR is the first report since EMP approval and aligns with the DEPWS guideline. The interest holder has prepared this AEPR for the reporting period 20 May 2022 – 19 May 2023.

No	Ministerial condition	Compliance Status	Evidence
	<p>by DEPWS for this purpose and be provided each year until such time a notification is made to the Minister under regulation 14 that the activity is complete, or until the EMP is revised and re-approved.</p>		
3	<p>In support of clause D.6.2 of the Code of Practice: Onshore Petroleum Activities in the Northern Territory, an emissions report must be provided to DEPWS by 30 September each year, via Onshoregas.DEPWS@nt.gov.au, which summarises actual annual greenhouse gas emissions from conduct of the regulated activity estimated and reported under the Commonwealth National Greenhouse and Energy Reporting Act 2007 versus predicted emissions in the EMP. The emissions report should include:</p> <ol style="list-style-type: none"> i. A summary of all regulated activities conducted which have contributed to greenhouse gas emissions during the reporting period; and ii. Explanation of differences between actual and predicted emissions with reference to all parts of the regulated activity with potential to create greenhouse gas emissions. <p>FOOTNOTE: Clause D.6.2(b) of the Code requires annual actual greenhouse gas emissions to be provided even where emissions are below the NGERs threshold of 25 ktCO₂e for scope 1 and scope 2 emissions reporting.</p>	Not applicable	<ul style="list-style-type: none"> • Civil construction at Amungee NW under this EMP commenced in early July 2022. The Annual Emissions Management Report for the period 1 July 2022 to 30 June 2023 (referred to as FY 23), will be submitted by 30 September 2023.
4	<p>To support clause C.7.2 of the Code of Practice: Onshore Petroleum Activities in the Northern Territory, all accidental releases of liquid contaminant or hazardous chemical must be immediately recorded in a site spill register. The spill register and geospatial files specifying the location of the spill must be submitted to DEPWS via Onshoregas.DEPWS@nt.gov.au three months after the 12 month anniversary of the approval of the EMP each year while the EMP is in force. The register must include:</p>	Compliant	<ul style="list-style-type: none"> • Refer Appendix A, which lists all spills regardless of incident threshold. • Refer geospatial file. • 1 recordable incident reported in Q2 2023.

No	Ministerial condition	Compliance Status	Evidence
	<ul style="list-style-type: none"> i. The location, source and volume of the spill or leak; ii. Volume of impacted soil removed for appropriate disposal and the depth of any associated excavation; iii. The corrective actions taken or proposed to be taken to prevent recurrence of an incident of a similar nature; and iv. GPS co-ordinates of the location of the spill. 		
5	<p>In support of clause B.4.17.2 of the Code of Practice: Onshore Petroleum Activities in the Northern Territory, the interest holder must:</p> <p>Undertake quarterly groundwater monitoring at each control and impact monitoring bore for a minimum of three years after establishment, unless otherwise advised by DEPWS.</p>	Compliant	<ul style="list-style-type: none"> • Amungee bores RN040894 and RN043018 have undergone quarterly groundwater monitoring. The last monitoring round being performed on 10 July 2023. • No wells have been drilled or stimulated on Velkerri 76 S2 that are covered by this Approval- all groundwater monitoring considered baseline • Quarterly groundwater monitoring results for Amungee NW submitted to DEPWS on 13 June 2023. • No indications of contamination were identified, with all exceedances assessed as natural variation. • Included groundwater monitoring completed post Amungee NW-2H stimulation.
	<p>ii Provide to DEPWS, via Onshoregas.DEPWS@nt.gov.au, the results of quarterly groundwater monitoring, as soon as practicable and no later than 2 months after collection, in a format to be determined by DEPWS.</p>	Compliant	<ul style="list-style-type: none"> • Lab reporting submitted to DEPWS on 13 June 2023 covering Amungee Nw. • No wells have been drilled on Velkerri 76 S2 that are covered by this Approval.
	<p>iii Provide to DEPWS, via Onshoregas.DEPWS@nt.gov.au, an interpretative report of groundwater quality based on the groundwater monitoring required to be conducted at the well site(s) in accordance with Table 6 of the Code. The interpretative report must be</p>	Compliant	<ul style="list-style-type: none"> • Quarterly groundwater report for Amungee EP 98 was submitted to DEPWS on 13 June 2023. • Groundwater take is submitted to DEPWS via WALAPs each month.

No	Ministerial condition	Compliance Status	Evidence
	<p>provided annually within 3 months of the anniversary of the approval date of the EMP and include:</p> <ul style="list-style-type: none"> • identification of any change to groundwater quality or level attributable to conduct of the regulated activity at the well site(s) and discussion of the significance and cause of any such observed change • interpretation of any statistical outliers observed from baseline measured values for each of the analytes • discussion of any trends observed • a summary of the results including descriptive statistics • description of the layout of the groundwater monitoring bores and wells, indicative groundwater flow directions and levels in accordance with the Preliminary Guideline Groundwater Monitoring Bores for Exploration Petroleum Wells in the Beetaloo Sub-basin. 		<ul style="list-style-type: none"> • No wells have been drilled on Velkerri 76 S2 that are covered by this Approval. • The year 1 interpretive groundwater report is in prep.
	<p>iv Develop site-specific performance standards for groundwater quality and interquartile ranges for analytes at each of the impact monitoring bores established, based on the first 3 years of groundwater monitoring, and provide to DEPWS, via Onshoregas.DEPWS@nt.gov.au within 6 months of the 3-year anniversary of approval of the EMP.</p>	Not applicable	<ul style="list-style-type: none"> • The EMP has only been in force for 12 months. • Quarterly groundwater monitoring is ongoing.
6	<p>In support of clause 16 of the Water Act 1992 (NT) and clause 8.4.2 of the Code of Practice: Onshore Petroleum Activities in the Northern Territory, the interest holder must undertake groundwater level / pressure monitoring at each impact monitoring bore established, using a logger to record water level for 2 weeks prior to, during, and 4 weeks after completion of hydraulic fracturing operations at each well pad. Data logging should record at a minimum of every 4 minutes for the duration of the recording period. The logging data should be provided to DEPWS via Onshoregas.DEPWS@nt.gov.au within 2 weeks of completion of groundwater level monitoring in each impact monitoring bore.</p>	Compliant	<ul style="list-style-type: none"> • Data logs for the Amungee impact monitoring bore were emailed to DEPWS on 3 May 2023.

No	Ministerial condition	Compliance Status	Evidence
7	<p>The interest holder must provide to DEPWS within 6 weeks of completion of well flowback operations at each new exploration well established under the EMP a report on the risk assessment of flowback wastewater from the hydraulic fracturing phase, via Onshoregas.DEPWS@nt.gov.au. The risk assessment must be:</p> <ul style="list-style-type: none"> i prepared by a suitably qualified person ii. prepared in accordance with the monitoring wastewater analytes specified in section C.8 of the Code of Practice: Onshore Petroleum Activities in the Northern Territory. 	Compliant	<ul style="list-style-type: none"> • initial well clean-up commenced on 25 March 2023. On 25 April 2023 official well testing (flowback) commenced. • The well was shut-in on 16 July 2023. • The report will be prepared and submitted to DEPWS by 27 August 2023.

2.2 Environmental outcomes and performance standards

Table 4 provides a systematic overview of compliance with the environmental outcomes and environmental performance standards within the approved EMP.

Table 4 Environmental outcome and performance standard compliance summary

#	Environmental outcomes	Environmental Performance Standard	Measurement Criteria	Compliance	Evidence
Environmental performance measures- soil					
S-1	No significant impact to the ecological function and productivity of soils resulting from [Tamboran's] exploration activities.	No releases of contaminants (chemicals, stimulation fluid, hydrocarbon, drilling wastewater or flowback wastewater) outside of [Tamboran's] lease pad.	Weekly site inspections completed during operations confirm no releases of chemicals, hydrocarbons and wastes outside of [Tamboran's] lease disturbance area.	Compliant	No incidents recorded relating to spills outside Tamboran's lease disturbance area.
S-2		No reportable spills, including wastewater tank/sump overtopping events or spills from wastewater recycling, resulting from [Tamboran's] exploration activities.	Weekly site inspections during hydrocarbon, wastewater and chemical storage, handling and recycling activities confirm no reportable spills.	Compliant	No reportable incidents recorded relating to spills during the reporting period.
S-3			Zero reportable incidents resulting from chemical or waste handling, recycling, treatment and transportation accidents.	Compliant	No reportable incidents recorded relating to spills during the reporting period.
S-4		Erosion and sediment control in place and working effectively.	6-monthly site stability inspections confirm ESC in place and working effectively. No erosion or sediment releases present that cannot be rectified	Compliant	Routine site inspections completed; no material erosion identified.

#	Environmental outcomes	Environmental Performance Standard	Measurement Criteria	Compliance	Evidence
			during routine site maintenance.		
S-5			Evidence of maintenance performed on all material erosion and sediment control events.	Compliant	Routine site inspections completed; no material erosion identified.
Environmental performance measure – surface water					
SW-1	No significant impact on surface water quality as a result of [Tamboran's] exploration activities.	During chemical and wastewater storage activities, no offsite release of contaminants from chemical, hydrocarbon and waste storage.	All stormwater discharges monitored by operators prior to release, with results confirm stormwater is within the approved limits listed in Table 22.	Compliant	Discharge monitoring results retained for each stormwater release. Results confirm testing completed prior to releases and within criteria.
SW-2		No seismic events over Ml 3.5 attributable to [Tamboran's] activities.	No seismic events over Ml 3.5 recorded in vicinity of a hydraulic fracture operation measured at the Warramunga seismic monitoring station or adjacent seismometer during period that hydraulic fracture estimations have occurred resulting in surface subsidence and impacting surface hydrology.	Compliant	Monitoring results available at https://earthquakes.ga.gov.au/ .
SW-3		No reportable spills, including off-site releases of contaminants resulting from [Tamboran's] exploration activities.	Weekly site inspections completed during chemical and wastewater storage, handling and recycling confirm no releases of	Compliant	No reportable incidents recorded relating to spills during the reporting period.

#	Environmental outcomes	Environmental Performance Standard	Measurement Criteria	Compliance	Evidence
			chemicals, hydrocarbons and wastewater outside of the project areas		
SW-4		Erosion and sediment control in place and working effectively.	All material erosion and sediment control events are rectified as soon practicable upon identification	Compliant	Routine site inspections completed; no material erosion identified. No material incidents of erosion reported.
Environmental performance measure – groundwater					
GW-1	[Tamboran’s] exploration activities do not reduce the environmental values of the underlying groundwater resources.	All regional aquifers isolated through cement and casing.	Isolation of the Gum Ridge Formation and Anthony Lagoons Formation is confirmed through cement bond logs and casing pressure tests.	Compliant	Cement bond logs submitted to DITT on 19 February 2023.
GW-2		No failure of wastewater tank secondary liner.	All leak detection alarms investigated within 24 hour, with no incidents of secondary liner failure.	Compliant	No incidents of leaks from secondary liner failure recorded during the reporting period.
GW-3		No seismic events over Ml 3.5 attributable to Tamboran’s activities.	No seismic events over Ml 3.5 recorded in vicinity of a hydraulic fracture operation measured at the Barramunga seismic monitoring station or adjacent site seismometer during period that hydraulic fracture stimulations have occurred.	Compliant	No seismic events detected. Monitoring results available at https://earthquakes.ga.gov.au/ .

#	Environmental outcomes	Environmental Performance Standard	Measurement Criteria	Compliance	Evidence
GW-4		No long-term (>12 month) reduction in quality of an impact groundwater monitoring bore that is attributable to [Tamboran's] activities. A decline is defined as a change in water chemistry that exceeds the ANZECC guidelines for Livestock (the primary Environmental Value) of groundwater in the region.	Quarterly groundwater monitoring data collected and analysed against baseline data demonstrates no material decline in groundwater quality.	Compliant	<p>Construction of IMB RN043018 on Amungee Nw completed on 08/09/2022; collection of baseline data commenced on 22 October 2022.</p> <p>Water extraction levels reported and submitted to DEPWS at least monthly via WALAPs.</p> <p>Annual groundwater extraction under WEL GRF 10285 as at 30/04/2022, was ~55 ML, which is well below the WEL permit of 175 ML/annum.</p> <p>No material reduction in water levels at Amungee NW have been observed, as evidence by level data submitted to DEPWS 03/05/2023</p> <p>No wells have been drilled or stimulated on Velkerri 76 S2 that are covered by this Approval.</p>
GW-5		No long term (>12 month) reduction in groundwater level observed in the impact monitoring bore that results in >1 m decline in groundwater water level.	Quarterly groundwater monitoring data collected and analysed against baseline data confirms no material (>1 m) decline in groundwater level.	Compliant	<p>Quarterly groundwater monitoring results for Amungee NW submitted to DEPWS on 03 May and 13 June 2023.</p> <p>No indications of contamination were identified, with all exceedances assessed as natural variation. The report Included groundwater monitoring completed post Amungee NW-2H stimulation.</p> <p>No wells have been drilled on Velkerri 76 S2 that are covered by this Approval.</p>

#	Environmental outcomes	Environmental Performance Standard	Measurement Criteria	Compliance	Evidence
GW-6			Total groundwater extraction volume below the approved water extraction licence take of 175 ML/year.	Compliant	Water extraction levels reported and submitted to DEPWS at least monthly via WALAPs. Annual groundwater extraction under WEL GRF 10285 as at 30/04/2022, was ~55 ML, which is well below the WEL permit of 175 ML/annum
Environmental performance measures – ecology					
EC-1	No significant impact to high valued habitats and listed threatened flora and fauna from [Tamboran's] exploration activities.	No releases of wastewater (drilling fluid and flowback) off the lease into the surrounding vegetation.	Weekly site inspections confirm no loss of containment (structural failure, overtopping or major spills from wastewater storage, handling and recycling) resulting in off-site releases of wastewater.	Compliant	No incidents of wastewater release into the surrounding vegetation reported in Tamboran's incident management system.
EC-2		<7 individual fauna deaths per week for 2 consecutive weeks caused by flowback water storage.	Daily checks of wastewater tanks for fauna mortality during well testing.	Compliant	No fauna deaths reported in flowback water storages during the reporting period.
EC-3			Weekly checks of area immediately surrounding lease pad for fauna deaths.	Compliant	No fauna deaths reported in flowback water storages during the reporting period.
EC-4		<0 threatened fauna deaths caused by flowback storage.	Daily checks of wastewater tanks for fauna mortality during well testing.	Compliant	No threatened fauna deaths reported in wastewater storages during the reporting period.

#	Environmental outcomes	Environmental Performance Standard	Measurement Criteria	Compliance	Evidence
EC-5			Weekly checks of area immediately surrounding lease pad for fauna deaths.	Compliant	No threatened fauna deaths reported in wastewater storages during the reporting period.
EC-6		No uncontrolled bushfires caused by Tamboran's exploration activities.	Zero reported incidents of uncontrolled bushfire caused by [Tamboran's] activities.	Compliant	Zero reported incidents of uncontrolled bushfire(s) caused by Tamboran's activities.
EC-7		Weed surveys completed on all [Tamboran] disturbed areas.	6-monthly pre- and post-wet season weed surveys completed on all [Tamboran] controlled disturbed areas.	Compliant	<p>Routine site inspections completed with chemical weed controls implemented.</p> <p>Annual weed report submitted to DEPWS 17 November 2022.</p> <p>Routine weed inspection of EP 98 was completed by DEPWS on 24 May 2023:</p> <ul style="list-style-type: none"> Hyptis (<i>Hyptis suaveolens</i>) was present outside of the lease pad between the first and second gate, and within the pastoral fence to the west of the lease pad. These incursions were chemically controlled on 26 May 2023. Gamba grass (<i>Andropogon gayanus</i>) was recorded near the camp area – 1 plant. Chemical control of the plant was completed on 26 May 2023. Gamba was present on the station prior to E&A activities. <p>No wells have been drilled on Velkerri 76 S2 that are covered by this Approval.</p>
EC-8		Year-on-year decline in the size and density of all weed	Annual report demonstrates weed infestation size and	Compliant	Routine site inspections completed with chemical controls implemented on Amungee

#	Environmental outcomes	Environmental Performance Standard	Measurement Criteria	Compliance	Evidence
		infestations introduced as a result of [Tamboran's] activities.	density of weed outbreaks introduced by [Tamboran's] activities are reducing each year.		NW. No evidence of weed outbreaks expanding in size. No wells have been drilled on Velkerri 76 S2 that are covered by this Approval.
Environmental performance measures – air quality and GHG emissions					
AQ-1	No significant impact on air quality and no excess greenhouse gas emissions as a result of [Tamboran's] exploration activities.	Venting to be eliminated as far as reasonably practicable.	Daily reports confirm the absence of cold venting.	Compliant	No incidents of uncontrolled gas emissions reported during the reporting period. 6 monthly leak detection on the Amungee NW-2H well will be completed in September 2023. No wells have been drilled on Velkerri 76 S2 that are covered by this Approval. No pastoralist complaints recorded during the activity. Zero reported incidents of uncontrolled bushfire(s) caused by Tamboran's activities.
AQ-2		All greenhouse gasses reporting in accordance with NGERs requirements.	All emissions related data (fuel use, flaring volumes etc.) reported in accordance with NGERs requirements.	Not applicable	The Annual Emissions Management Report for the period 1 July 2022 to 30 June 2023 (Financial Year 23), will be submitted by 30 September 2023.
AQ-3		All leaks detected and repaired in accordance with code of practice	6-monthly leak detection program completed on surface equipment.	Not applicable	The first 6 monthly leak detection on the Amungee NW-2H well will be completed in September 2023. No wells have been drilled on Velkerri 76 S2 that are covered by this Approval.
AQ-4			Minor leaks rectified as per Code of Practice within 30-days.	Not applicable	6 monthly leak detection on the Amungee NW-2H well will be completed in September 2023.

#	Environmental outcomes	Environmental Performance Standard	Measurement Criteria	Compliance	Evidence
					No wells have been drilled on Velkerri 76 S2 that are covered by this Approval.
AQ-5			A significant leak is repaired as per the Code of Practice within 72-hours.	Not applicable	6 monthly leak detection on the Amungee NW-2H well will be completed in September 2023. No wells have been drilled on Velkerri 76 S2 that are covered by this Approval.
Environmental performance measures – community					
CO-1	No significant negative impacts to the community as a result of [Tamboran’s] exploration activities	All valid community complaints of nuisance investigated and resolved.	All valid community complaints responded to within 24-hours with actions to remedy nuisance implemented as soon as practicable (depending on the nature of the complaint).	Compliant	No pastoralist complaints recorded during the activity/reporting period.
CO-2		>60% of addressable spend ⁶ to be from NT businesses.	Project expenditure data confirms the NT business spend on the Beetaloo exploration project exceeds >60% of addressable spend ⁶ of the project.	Compliant	All services (weed inspections, site inspections, etc.) completed by local businesses.
Environmental performance measures – cultural heritage					
EC-1	No significant impact on sacred sites and environmental values	No non-compliances with AAPA certificate conditions.	No unauthorised work within Restricted Work Areas (RWA).	Compliant	No incidents of unauthorised work in RWAs during the reporting period.

⁶ Addressable spend is defined as a service or material that can be reasonably provided by an NT business at similar quality, timeliness and cost.

#	Environmental outcomes	Environmental Performance Standard	Measurement Criteria	Compliance	Evidence
EC-2	as a result of [Tamboran's] exploration activities.		No impacts to sacred sites	Compliant	No incidents of impacts to sacred sites recorded during the reporting period.
EC-3			Site inductions completed on all employees and contractors, which include information on RWAs and approved activity areas.	Compliant	All Tamboran employees, visitors and contractors must complete the site induction. Induction records retained within the induction portal.

2.3 Mandatory reporting requirements

Table 5 demonstrates compliance with reporting requirements in the Code and interest holder’s compliance with reporting requirements under the Regulations, schedule 1, item 11(2) – i.e. that all information to be recorded, monitored or reported has been provided. Where relevant, Tamboran has also confirmed that all records, monitoring or required reporting under the Regulations⁷ has been provided to DEPWS or the relevant NTG agency.

Table 5 Summary of mandatory reporting requirements

#	Reference	Requirement	Compliance Status	Evidence
1	Code A.3.5	Geospatial information depicting areas cleared is to be provided to the Minister.	Compliant	<p>The interest holder supplied civil daily reporting to DEPWS on 20 July 2022 for the period 12/07 – 18/07.</p> <p>The interest holder provided a revised rehabilitation plan for the site, including shapefiles to DEPWS on 23 November 2022. As outlined in that advice:</p> <ul style="list-style-type: none"> • Rehabilitation has not commenced on the Amungee NW 98 site. • The revised surface disturbance table is a comparison between EMP (proposed) vs actual cleared footprint • The success criteria remain unchanged. • The rehabilitation plan for the Amungee NW site was assessed and accepted by DEPWS, 29 November 2022.
2	Code A.3.6 (b)	Weed management plan developed as part of the EMP must provide for ongoing weed monitoring.	Compliant	<p>Weed management plan developed, with 6 monthly weed monitoring completed.</p> <p>Routine site inspections completed with chemical controls undertaken.</p> <p>Annual weed report submitted to DEPWS 17 November 2022.</p> <p>Routine weed inspection completed by DEPWS, 24 May 2023:</p> <ul style="list-style-type: none"> • Hyptis was present outside of the lease pad between the first and second gate, and within the pastoral fence to the west of the lease pad. These incursions were chemically controlled on 26 May 2023.

⁷ Petroleum (Environment) Regulations 2016 (NT) sch 1, item 11(2).

#	Reference	Requirement	Compliance Status	Evidence
				<ul style="list-style-type: none"> Gamba grass was recorded near the camp area – 1 plant. Chemical control of the plant was completed on 26 May 2023.
3	Code A.3.7(a)vi	The fire management plan developed as part of the EMP must provide for annual fire mapping to monitor changes to fire frequency in the relevant areas.	Compliant	<p>Fire management plan implemented.</p> <p>Annual fire mapping using NAFI data indicates the most recent fires in the vicinity of EP 98 and EP 76 occurred in 2021 and 2018, respectively. Refer annual fire mapping (Appendix B).</p>
4	Code A.3.9(c) Code A.3.9(e)	The rehabilitation plan developed as part of the EMP requires progressive rehabilitation of significantly disturbed land which is required to commence no longer than 12 months following the cessation of activities on the land. It also requires regular maintenance and annual monitoring of rehabilitated areas.	Compliant	<p>The interest holder⁸ supplied civil daily reporting to DEPWS on 20 July 2022 for the period 12/07 – 18/07.</p> <p>The interest holder provided a revised rehabilitation plan for the site, including shapefiles to DEPWS on 23 November 2022.⁹ As outlined in that advice:</p> <ul style="list-style-type: none"> Rehabilitation has not commenced on the Amungee NW 98 site. The revised surface disturbance table is a comparison between EMP (proposed) vs actual cleared footprint The success criteria remain unchanged. The rehabilitation plan for the Amungee NW site was assessed and accepted by DEPWS, 29 November 2022.
5	Code B.4.13.2(c)	As a minimum, the following must be recorded and reported for each stage (where a stage in this context means all fluids pumped at a particular depth interval):	Not applicable	A final well activity report must be provided to the Minister for Resources within 3 months from the date that the activity was completed. ¹⁰ As outlined in Schedule 4M (item 16c), the report must include details of any fracturing activities.

⁸ Supra footnote 2.

⁹ Supra footnote 4.

¹⁰ Refer Regulation 66AV and Schedule 4M of the Petroleum Regulations 2020.

#	Reference	Requirement	Compliance Status	Evidence
		<ul style="list-style-type: none"> total volume of hydraulic fracturing fluid pumped, quality of water used (tested for analytes in section C.8 of this Code. Analyses do not need to be repeated if the same water source is used for multiple stages) and typical and maximum concentrations of chemicals or other substances used. 		<p>The report Amungee Nw 2H will be submitted to DITT on or before 16 October 2023.</p> <p>No wells have been drilled on Velkerri 76 S2 that are covered by this approval / AEPR.</p>
6	Code B.4.13.2(k)iv	Where venting is the only technically feasible option for managing produced gas, the technical considerations preventing the use of the recovered gas must be recorded and included in the operator's annual report.	Not applicable	<p>No incidents of uncontrolled gas emissions recorded during the reporting period on EP 98.</p> <p>In accordance with section 61H of the Act, an annual report is required within 1 month of the anniversary of the grant of the title to which they relate. As per reporting advice from DITT dated 13 July 2023, the annual report for EP 98 is due on 4 March 2024.</p> <p>The 2022 – 23 emissions management report will be submitted by 30 September 2023.</p>
7	Code B.4.14.2(c)	All new barriers or new well operating envelopes must be verified and clearly documented and reported by submission of an updated well barrier integrity validation (WBIV) report to DPIR.	Compliant	<p>The WBIV report for the Amungee NW-2H well was submitted to DITT on 2 June 2023, demonstrating compliance.</p> <p>No wells have been drilled on Velkerri 76 S2 that are covered by this approval / AEPR.</p>
8	Code B.4.15.2(j)	Complete and accurate records of the entire decommissioning procedure must be kept, with these records submitted as part of	Not applicable	<p>Amungee NW-2H well has not been decommissioned.</p> <p>No wells have been drilled on Velkerri 76 S2 that are covered by this approval / AEPR.</p>

#	Reference	Requirement	Compliance Status	Evidence
		the legislative reporting requirements for the decommissioning of petroleum wells.		
9	Code B.4.17.2(d)	Any guidelines published by the Northern Territory Government from time to time relating to reporting and data submission, and groundwater monitoring data standards must be followed.	Compliant	<p>Construction of IMB RN043018 was completed on 08/09/2022; collection of baseline data commenced on 22 October 2022.</p> <p>Quarterly groundwater monitoring results for Amungee NW were submitted to DEPWS on 13 June 2023. The report included groundwater monitoring completed post Amungee NW-2H stimulation.</p> <p>All groundwater monitoring is undertaken in accordance with the NT's <i>Preliminary Guideline: Groundwater monitoring bores for exploration petroleum wells in the Beetaloo Sub-basin</i>.</p> <p>No wells have been drilled on Velkerri 76 S2 that are covered by this approval / AEPR - with groundwater results considered "baseline".</p>
10	Code C.3(e)	The components of the wastewater management framework, include: Monitor, manage and report in accordance with the Wastewater Management Plan and Spill Management Plan.	Compliant	<p>The approved EMP includes a WWMP and SMP, which has been adhered to during the reporting period.</p> <p>No incidents of uncontrolled wastewater release or spills were recorded during the reporting period.</p>
11	Code C.6.1(d)	Wastewater tracking documentation must be reported to the Minister at least annually in accordance with the framework provided in the EMP.	Compliant	All wastewater tracking reported weekly.
12	Code C.7.1(d)ii	Wastewater Management Plan must include a program for monitoring and reporting against	Compliant	The approved EMP includes a WWMP and SMP, which has been adhered to during the reporting period.

#	Reference	Requirement	Compliance Status	Evidence
		the effectiveness of the measures for the mitigation of interaction with wildlife, stock and human receptors with wastewater.		No fauna interactions with wastewater storages were recorded during the reporting period.
13	Code D.4.3.2(f)	A written report detailing the levels of methane measured, the duration of the unusual readings and the results of the investigation (including remedial actions) must be submitted within one month of the significantly higher-level methane event being detected.	Not applicable	This condition is associated with a larger field development program.
14	Code D.5.9.2(c)	Emissions from exploration, well construction (including during flowback) and workovers must be measured and reports submitted.	Compliant	Emission related data (including fuel usage and flaring data) have been measured. The Annual Emissions Management Report for the period 1 July 2022 to 30 June 2023 (referred to as FY 23), will be submitted by 30 September 2023.
15	Code D.5.9.3(a)	Where natural gas is vented or flared at a gas processing or other downstream facility, emissions must be estimated and reported.	Not applicable	This condition is associated with a larger field development program. The Annual Emissions Management Report for the period 1 July 2022 to 30 June 2023 (referred to as FY 23), will be submitted by 30 September 2023.
16	Code D.6.2(a)	Reports of baseline assessments must be submitted at the conclusion of each field campaign.	Not applicable	CSIRO completed baseline assessments through DITT.
17	Code D.6.2(b)	Emissions reporting must be in accordance with Section D.5.6. Emissions associated with venting and flaring as described in Section D.5.9 must be provided separately to the Northern Territory	Not applicable	Emission reporting, as per section 5.6 will be provided on or before the 30 September 2023.

#	Reference	Requirement	Compliance Status	Evidence
		Government in accordance with this Code.		
18	Regulations Reg 14	A current EMP remains in force until the interest holder notifies the Minister the activity is no longer being carried out and all of the environmental outcomes and obligations under the plan have been met, and the Minister advises the interest holder the notice is accepted and the plan ceases to be in force.	Compliant	The EMP is still in force and has approximately 4 years remaining before the next review.
19	Regulations Reg 33	DEPWS is notified of reportable incidents within 2 hours of the interest holder becoming aware of the incident, or within 2 hours of the incident occurring. A written report must be provided within 24 hours if the initial report was made orally.	Compliant	No reportable incidents have been recorded.
20	Regulations Reg 34	Reports on reportable incidents are to be provided to DEPWS as soon as practicable and within 72 hours of the event occurring. A final report must be provided to DEPWS within 30 days after remediation/clean-up of the affected area.	Compliant	No reportable incidents have been recorded.
21	Regulations	A written report of all recordable incidents must be provided to	Compliant	Quarterly recordable incidents reports were provided as follows:

#	Reference	Requirement	Compliance Status	Evidence
	Reg 35	DEPWS not later than 15 days after the 90-day reporting period (unless otherwise agreed).		<ul style="list-style-type: none"> Q[2] 2022 report provided 14/07/2022 Q3 2022 report provided 10/10/2022 Q4 2022 report provided 16/01/2023 Q1 2023 report provided 13/04/2023 Q2 2023 report provided 14/07/2023
22	Regulations Reg 37A	A report about flowback fluid from hydraulic fracturing must be provided to the Minister within 6 months of the flowback occurring.	Compliant	<p>The well clean up on the Amungee NW 2H well commenced on 25 March 2023, with official flowback operations coming 25 April 2023. Final well shut-in occurred on 16 July 2023.</p> <p>The flowback fluid report will be prepared and submitted to DEPWS on, or before, 25 October 2023.</p>
23	Regulations Reg 37B	A report about produced water from hydraulic fracturing must be provided to the Minister within 6 months of the produced water being extracted.	Compliant	No produced water was generated from the Amungee NW 2H well. The produced water fluid report will be prepared and submitted to DEPWS on, or before, 25 October 2023.
24	Regulations Schedule 1, item 9(2)	Interest holders are required to conduct future engagement with stakeholders, in accordance with the description in the EMP.	Compliant	Stakeholder engagement with immediately affected parties is ongoing, with the frequency of the engagement dependent on the level of activity being completed onsite at a given point of time.
25	Regulations Schedule 1, item 12	Interest holder must notify the Minister, occupier of the land and owner of the land on which the activity is to be carried out before commencement of activity.	Compliant	<p>The interest holder notified DEPWS on 7 July 2022 of the intent to commence civil construction in accordance with the approved EMP.</p> <p>Amungee Mungee Pastoralist notified 11 July 2022.</p> <p>The interest holder notified DEPWS on 9 November 2022 of imminent spudding of Amungee NW-2H E&A well and provided ongoing daily reports.</p>

#	Reference	Requirement	Compliance Status	Evidence
26	Environment Protection Act 2019 (NT) div 8	Duty to notify the NT EPA as soon as practicable but within 24 hours of any incident which occurs which causes or threatens to cause material or significant environmental harm.	Not applicable	No incidents which could cause or threaten to cause material or significant environmental harm occurred during reporting period.
27	Waste Management and Pollution Control Act 1998 (NT) s 14	Duty to notify the NT EPA as soon as practicable but within 24 hours of any incident which occurs which causes or threatens to cause pollution resulting in material or significant environmental harm.	Not applicable	No incidents which could cause or threaten to cause material or significant environmental harm occurred during reporting period.

3. Summary of Compliance

3.1 Overview of compliance

Table 6 provides a summary of the results of the compliance assessment against the EMP.

Table 6 Beetaloo Sub-Basin Multi-Well Drilling, Stimulation and Well Testing Program EP 98, EP 76 EMP compliance summary

Compliance Indicator	Number	Percentage
Compliant	62	100%
Not compliant	0	0%
Not applicable	15	N/A

3.2 Overview of items found not compliant

The following sections describe:

- the specific compliance requirements not met for the reporting period
- an analysis of the possible potential environmental harm or impact to environmental values resulting from non-compliance, using multiple lines of evidence
- a summary of the corrective actions already implemented, and further actions still required, as applicable, to ensure compliance is fully achieved in the future.

3.2.1 Ministerial approval conditions

3.2.1.1 Description

No non-compliances with Ministerial conditions were observed during the reporting period.

3.2.2 Environmental performance standards

3.2.2.1 Description

No non-compliance with an environmental performance standard was recorded during the reporting period.

3.2.3 Regulatory reporting

3.2.3.1 Description

No non-compliance with regulatory reporting requirements were recorded during the period.

3.3 Application of Lessons Learned Across Tamboran's Onshore Interests

Tamboran has implemented several corrective actions following the 1000 L bromide spill that occurred on 20 April 2023. This spill was caused by a tyne puncture of the IBC during handling. Lessons include:

- Ensuring a spotter to be used for all tote loading operations to avoid blind spots during handling

- A review of MPK's scope of work to ensure trained and competent people are provided for the tasks to be completed on site.
- Implementation of inspection process for bunding to ensure they remain fit for purpose.