

Appendix A: Change notice – Regulation 22

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
Brief Description	<ol style="list-style-type: none"> 1. Fencing: Remove the requirement to install fences around infrastructure within the well site fenced area, thereby eliminating fenced areas within fenced areas. 2. Asset Protection Zone (APZ): Amend the APZ definition and operational criteria to align with the Bushfire Management Plan (BMP) (Appendix I), thereby eliminating the need for an additional perimeter APZ and additional land clearing. 3. Stormwater release values: Revise the stormwater release criteria to align with the release parameters used on other Tamboran sites, which are based on modelling. 4. Freeboard: <ol style="list-style-type: none"> a. Ensure drilling sumps have a dry season freeboard of 300 mm and wet season freeboards of 1300 mm. Additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump. b. Ensure open tanks have a dry season freeboard of 300 mm and wet season freeboards of 1300 mm. c. Clarification that enclosed tanks do not require freeboard in accordance with the Code. 5. Drilling sump wastewater transfer: Ability to transfer drilling fluids, muds and cuttings to sump/tanks on other approved sites to ensure freeboard is maintained. 6. Amend the following appendices to incorporate the changes outlined in 1 – 5, above: <ol style="list-style-type: none"> a. DST Environmental Risk Assessment (Appendix A) b. Erosion and Sediment Control Plan (Appendix B) c. Wastewater Management Plan (Appendix F) d. Spill Prevention and Response Plan (Appendix G) e. Bushfire Management Plan (Appendix I) 								
Geospatial files included?	N/A								
Does the proposed change result in a new, or increased, or potential or actual environmental impact or risk?	If an INCREASE in the existing potential or actual environmental risk, is it provided for in the EMP?	Does the proposed change require additional mitigation measures to be included?	Has additional stakeholder engagement been conducted?	Does it require additional environmental performance standards and measurement criteria?	Does it affect compliances with Sacred Site Authority Certificates?	Does it affect current rehabilitation, weed fire, wastewater, erosion and sediment control, spill or emergency response plans?	Will the environmental outcome continue to be achieved, and will the impacts and risks be managed to ALARP and acceptable?		
No. There are no new or increased environmental impacts or risks, as the well site is fenced.	N/A No increased impact or risk with sufficient controls outlined in the EMP.	No. Existing mitigation measures are in place covering well site construction and operations.	N/A. Stakeholder engagement is not required.	No. Environmental performance standards within the existing approved EMP are sufficient.	No. Activity covered under the existing AAPA certificate C2020/072.	Yes. Minor edits have been made to the appendices listed above to incorporate the changes and consistency throughout the EMP. All other plans remain valid and appropriate.	Yes. Environmental performance standards listed in section 7.3 of the EMP will be met.		
Additional contextual information	<ol style="list-style-type: none"> 1. The proposed modifications do not introduce a new regulated activity. 2. The modifications do not result in a new or increased environmental impact or risk that is not already described and assessed in the EMP. 3. These amendments are aimed at clarifying the operational intent of the description currently in the EMP and remove ambiguity as to interpretation of the intent. 								

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
-----------------	----------------------------	-----------	--	---------------	--------	-------	---	------	-----------------

Current EMP text	Amended EMP text
------------------	------------------

Table of Definitions and Acronyms

Definitions/Acronyms	Meaning
Well Pad	means the cleared area specific to the individual well pad based on approx. 280 m x 260 m. The well pad is a compacted area that includes flare pit, cellar and sump (nominal 180 m x 180 m) and an external perimeter area of 20 m width to cater for soil stockpiling and a firebreak. An additional 20 m buffer of managed vegetation will be established as an asset protection zone.

Table of Definitions and Acronyms

Definitions/Acronyms	Meaning
Well Pad	Means the cleared area specific to the individual well pad based on approx. 280 m x 260 m. The well pad is a compacted area that includes flare pit, cellar and sump (nominal 180 m x 180 m) and an external perimeter area of 20 m width to cater for soil stockpiling and a firebreak. An additional 20 m buffer of managed vegetation will be established as an asset protection zone. Vegetation within the asset protection zone (APZ) and on bunds will be managed based on operational / seasonal requirements (e.g. manned vs unmanned; wet season vs dry season) and at the discretion of the Field / Site Manager, as per in the Bushfire Management Plan.

3.3 Exploration Lease Pads

- Fencing –stock proof fencing will be installed around the perimeter of the well pad and water tank pad and cattle grids will be installed at the entrance/exit points. A “hump” or “rise” will be installed at these entrance points to the pads to act as a barrier to water flow onto or off the pad in lieu of the perimeter bund (Appendix B).
- Mud sump – currently designed as a simple excavated rectangular pond with two compartments and compacted above ground bund of 0.3 m around the perimeter with the liner running up and over the bund. The size of the mud sump will give sufficient volume for drilling mud storage with freeboard of 1.3 m (see Section 3.10.5 for details of 1.3 m freeboard estimate). The sump shape and layout may be modified to suit specific drilling rig requirements. Mud sump capacities will range from 2,000 m³ to 2,750 m³ to accommodate the range in horizontal well lengths covered in this EMP.
- Fire breaks / fire zone management – comprises a 10 m perimeter cleared around the lease pad, perimeter bund, fencing, a 10 m firebreak that encompasses a 4 m fire trail, and a 20 m perimeter functioning as a managed vegetation zone. This area comprises an asset protection zone around infrastructure (Appendix I).

3.3 Exploration Lease Pads

- Fencing –stock proof fencing will be installed around the perimeter of the well site ~~pad and water tank pad~~ and cattle grids will be installed at the entrance/exit points. A “hump” or “rise” will be installed at these entrance points to the pads to act as a barrier to water flow onto or off the pad in lieu of the perimeter bund (Appendix B).
- Mud sump – currently designed as a simple excavated rectangular pond with two compartments and compacted above ground bund of 0.3 m around the perimeter with the liner running up and over the bund. The size of the mud sump will give sufficient volume for drilling mud storage with **a wet season freeboard of 1.3 m and dry season freeboard of 0.3 m** (see Section 3.10.5 for details of 1.3 m wet season freeboard estimate). **Additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump.** The sump shape and layout may be modified to suit specific drilling rig requirements. Mud sump capacities will range from 2,000 m³ to 2,750 m³ to accommodate the range in horizontal well lengths covered in this EMP.
- Fire breaks / fire zone management – comprises a 10 m perimeter cleared around the lease pad **during operations**, perimeter bund, fencing, a 10 m firebreak that encompasses a **temporary** 4m fire trail, and a 20 m perimeter functioning as a managed vegetation zone. This area comprises an asset protection zone around infrastructure (Appendix I). **NOTE: Manned sites with active operations (e.g. camps, drilling and stimulation) will require a higher degree of protection compared to unmanned sites. It is at the Field / Site Manager’s discretion to ensure APZs are maintained when required, whilst also maximising vegetation re-instatement to increase site stability and decrease the risk of erosion and offsite sediment releases (a key ESCP control). When sites are unmanned and infrastructure is removed, the combined well pad and tank pad surface areas are sufficient buffer to meet APZ criteria, eliminating the need for an additional perimeter APZ.**

3.5.10 Drilling Fluids

...

Drilling fluids will be stored in fit-for-purpose mud tanks and/or drill sumps, and formation cuttings transferred to the cuttings pit. Drilling fluid management, including monitoring of drilling fluids and cuttings is covered in more detail in Appendix F WWMP.

3.5.10 Drilling Fluids

...

Drilling fluids will be stored in fit-for-purpose mud tanks and/or drill sumps **(e.g. stored in engineered lined Coletanche (or similar sumps or wastewater tanks))**, and formation cuttings transferred to the cuttings pit.

Waste drilling fluids may also be transferred and stored to sumps/ tanks on other approved sites to ensure sufficient capacity is always in place to accommodate the freeboard requirements. The maximum water level (1.3 m wet season and 0.3 m dry season freeboard) will be clearly marked on the side of the sump. Additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump.

Drilling fluid management, including monitoring of drilling fluids and cuttings is covered in more detail in Appendix F WWMP.

3.10.4 Drilling Fluid Storage

Drilling fluids, muds and cuttings will be managed in accordance with the following key safeguards: ...

- the open tank and pits will be marked with the appropriate freeboard applicable for the season to ensure capacity is available, including 1.3 m freeboard during the wet season as detailed in Section 3.10.5

3.10.4 Drilling Fluid Storage

Drilling fluids, muds and cuttings will be managed in accordance with the following key safeguards: ...

- the open **working evaporation** tanks and ~~pits~~ **mud sumps will have enough freeboard to manage and entire 1:1,000 ARI wet season event** and will be marked with the appropriate freeboard applicable for the season to ensure capacity is available, including **0.3 m freeboard during the dry season and 1.3 m freeboard** during the wet season as detailed in Section 3.10.5.

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
Current EMP text				Amended EMP text					
<ul style="list-style-type: none"> the open pit and tanks will be fitted with fauna ladders, and the lease pad fenced off from stock and other larger fauna species. 				<ul style="list-style-type: none"> Transfers of wastewater to the sump must not cause the freeboard to be exceeded. All operational inflows to cease prior to exceeding the freeboard requirements. Disposal of fluid and waste to sumps/tanks must not occur where the fluid level in the sump is above the relevant freeboard. Additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump. the open pit and tanks will be fitted with fauna ladders, and the well site fenced off from stock and other larger fauna species. 					
3.10.4.1 Flowback and Produced Water Flowback and produced water storage will incorporate the following key safeguards: <ul style="list-style-type: none"> Storage of flowback fluid and produced water will meet the secondary containment requirement as per Section A.3.8 (g) and have sufficient capacity to hold 100% of the largest tank volume stored, plus 10%. Above ground closed top storage tanks will be designed and constructed in accordance with Australian Standards (including AS1554.1 and AS3990) including: <ul style="list-style-type: none"> Designed to withstand bushfire attack (20 m firebreak, plus APZ) and meet local wind loading considerations. Fitted with leak detection and high-level alarms, calibrated to the relevant freeboard requirement of 1.3 m open topped tanks and 0.5 m for enclosed tanks. Prevents entry of rainwater. Fitted with vents to prevent the build-up of explosive gasses. Above ground open topped treatment tanks will be designed and constructed in accordance with Australian Standards (including AS1554.1 and AS3990), as per closed top storage tanks, plus: <ul style="list-style-type: none"> Marked with appropriate freeboard (1.3 m in wet season). Fitted with fauna ladders and minimises access points as far as reasonably practicable for fauna. 				3.10.4.1 Flowback and Produced Water Flowback and produced water storage will incorporate the following key safeguards: <ul style="list-style-type: none"> Storage of flowback fluid and produced water will meet the secondary containment requirement as per Section A.3.8 (g) and have sufficient capacity to hold 100% of the largest tank volume stored, plus 10%. Above ground closed top storage tanks will be designed and constructed in accordance with Australian Standards (including AS1554.1 and AS3990) including: <ul style="list-style-type: none"> Designed to withstand bushfire attack (20 m firebreak, plus APZ) and meet local wind loading considerations. Fitted with leak detection and high-level alarms, calibrated to the relevant freeboard requirement of 0.3 m dry season and 1.3 m wet season for open topped tanks. Prevents entry of rainwater. Fitted with vents to prevent the build-up of explosive gasses. Above ground open topped treatment tanks will be designed and constructed in accordance with Australian Standards (including AS1554.1 and AS3990), as per closed top storage tanks, plus: <ul style="list-style-type: none"> Marked with appropriate freeboard (i.e. 0.3 m in dry season; 1.3 m in wet season). Fitted with fauna ladders and minimises access points as far as reasonably practicable for fauna. 					
3.10.5 Wastewater Storage Consideration Section C.7.1 of the Code requires that open storage areas have sufficient capacity to provide enough freeboard to accommodate the total rainfall anticipated (based on 1 in 1,000 average recurrence interval (ARI) rainfall rate using Australian Rainfall & Runoff methodologies) for the critical period when there is the greatest risk of overtopping any structures holding wastewater. To determine the appropriate freeboard allowance, methodology was applied that is used in the determination of peak rainfall events for water storages when assessing failure modes. ... The 1 in 1,000-year, three (3) month wet season results in a rainfall estimate of 1,289 mm, however confidence bounds show that this could be between 1,054 mm to 1,675 mm. The graph also suggests the trend for the larger events is toward the lower values. ... Based on the outcome of the assessment, Sweetpea have adopted a freeboard of 1,300 mm (1.3 m) for the 1:1,000 buffer allowance for any open topped wastewater storage. Sweetpea will ensure that the minimum freeboard requirements will be maintained in accordance with the NT Codes of Practice Section C.5.5 (b). If open top tanks are utilised on a location and the BOM forecast a “significant rainfall event”, then the forecast rainfall will be deducted from the current freeboard to define the new freeboard. If the new freeboard post significant rainfall event is equal to or higher than the 1.3 m freeboard required, then Sweetpea will transfer enough produced and flowback water from the tank in question into an above ground enclosed top tank to ensure the event will not allow the tank to exceed the freeboard requirements of 1.3 m. This transfer will be completed at least 8 hours before the “significant rainfall event” is forecasted to start.				3.10.5 Wastewater Storage Considerations Section C.7.1 of the Code requires that open storage areas have sufficient capacity to provide enough wet season freeboard to accommodate the total rainfall anticipated (based on 1 in 1,000 average recurrence interval (ARI) rainfall rate using Australian Rainfall & Runoff methodologies) for the critical period when there is the greatest risk of overtopping any structures holding wastewater. To determine the appropriate wet season freeboard allowance, methodology was applied that is used in the determination of peak rainfall events for water storages when assessing failure modes. ... The 1 in 1,000-year, three (3) month wet season results in a rainfall median of 1,289 mm and 3-month dry season median of 300 mm ...The graph also suggests the trend for the larger events is toward the lower values ... Based on the outcome of the assessment, a 300 mm dry season freeboard and 1,300 mm (1.3 m) wet season freeboard will be applied to all open sumps and tanks. (Noting that additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump.) Sweetpea will ensure that the minimum freeboard requirements will be maintained in accordance with the NT Codes of Practice Section C.5.5 (b). If open top tanks are utilised on a location and the BOM forecast a “significant rainfall event”, then the forecast rainfall will be deducted from the current freeboard to define the new freeboard. If the new freeboard post significant rainfall event is equal to or higher than the 1.3 m wet season freeboard required, then Sweetpea will transfer enough produced and flowback water from the tank in question into an above ground enclosed top tank to ensure the event will not allow the tank to exceed the wet season freeboard requirements of 1.3 m. This transfer will be completed at least 8 hours before the “significant rainfall event” is forecasted to start.					
3.10.10 Fauna and Bird Access				3.10.10 Fauna and Bird Access					

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
------------------------	----------------------------	------------------	--	----------------------	--------	--------------	---	-------------	-----------------

Current EMP text	Amended EMP text
-------------------------	-------------------------

The use of open top tanks for use in evaporation of wastewater could if consumed be a risk to fauna due to the salinity and chemistry of flowback water. The risk is minimal as the salinity levels itself acts as a deterrent from fauna consuming or interacting with wastewater. Earthen freshwater pits and drilling pits will be fenced in to minimise the chance of animals having any interaction with the contents of the pits whether freshwater or drilling fluids. ...

The use of open top tanks for use in evaporation of wastewater could if consumed be a risk to fauna due to the salinity and chemistry of flowback water. The risk is minimal as the salinity levels itself acts as a deterrent from fauna consuming or interacting with wastewater. **The well site** will be fenced to minimise the chance of animals having any interaction with the contents of the pits whether freshwater or drilling fluids. ...

4.0 Risk Assessment
Table 3 Wastewater Risk Assessment and ALARP Statement

ALARP Statement	Engineering	<ul style="list-style-type: none"> Use of enclosed tanks, double-lined with leak detection. Secondary containment for all pumps and high-risk spill locations. Freeboard requirements (based on 1:1,000-year average recurrence interval rainfall estimates). Produced water and flowback fluid volumes will be managed to maximise evaporation to reduce volumes. Drilling fluids evaporated as much as possible; pending the weather window and freeboard requirements (minimum 1.3 m during the wet season for open topped tanks) with remaining fluid to be appropriately transported and disposed of at a licenced facility. Buffers, fencing and use of fauna ladders to reduce potential for wildlife, stock and humans being impacted by activities.
------------------------	--------------------	---

4.0 Risk Assessment
Table 3 Wastewater Risk Assessment and ALARP Statement

ALARP Statement	Engineering	<ul style="list-style-type: none"> Use of enclosed tanks, double-lined with leak detection. Secondary containment for all pumps and high-risk spill locations. Freeboard requirements (based on 1:1,000-year average recurrence interval rainfall estimates) – e.g. 0.3 m dry season freeboard; 1.3 m wet season freeboard. Produced water and flowback fluid volumes will be managed to maximise evaporation to reduce volumes. Drilling fluids evaporated as much as possible; pending the weather window and freeboard requirements (minimum 0.3 m during the dry season and 1.3 m during the wet season for sumps/open topped tanks) with remaining fluid to be appropriately transported and disposed of at a licenced facility. Buffers, fencing and use of fauna ladders to reduce potential for wildlife, stock and humans being impacted by activities.
------------------------	--------------------	--

3.10 Waste and Wastewater Management
3.10.1 General
Table 13 Waste and Disposal Methods

Activities	Management Tasks	
Drilling, HFS and Testing Waste		
Drilling cuttings, cement returns and fluids from exploration drilling	Drilling Fluids ~1 ML per well Cuttings ~650-850 m ³ per well	Disposal: All drilling fluids will be directed to an onsite mud sump. The liquid contents of the sump will be evaporated, and the sump backfilled.

3.10 Waste and Wastewater Management
3.10.1 General
Table 13 Waste and Disposal Methods

Activities	Management Tasks	
Drilling, HFS and Testing Waste		
Drilling cuttings, cement returns and fluids from exploration drilling	Drilling Fluids ~1 ML per well Cuttings ~650-850 m ³ per well	Disposal: All drilling fluids will be directed to an onsite mud sump or transferred to other approved sites to ensure sufficient capacity is always in place to accommodate the freeboard requirements . The liquid contents of the sump will be evaporated, and the sump backfilled.

3.10.4 Drilling Fluid Storage
Drilling fluid storage is a regulated activity under section C.4.1 of the Code and proposed management of storage is covered in Section 7.6 and Appendix F WWMP and Appendix G SPRP. Drilling fluids, muds and cuttings will be managed in accordance with the following key safeguards:

- contained in an engineered pit on the well pad that is lined with an impermeable membrane in accordance with section C.4.1.2 (b) of the Code
- the excess drilling fluids may be transferred into an above ground storage tank that meets section B.4.16.2(h) of the Code to assist with drying out the muds and cuttings

...

3.10.4 Drilling Fluid Storage
Drilling fluid storage is a regulated activity under section C.4.1 of the Code and proposed management of storage is covered in Section 7.6 and Appendix F WWMP and Appendix G SPRP. Drilling fluids, muds and cuttings will be managed in accordance with the following key safeguards:

- contained in an engineered pit on the well pad that is lined with an impermeable membrane in accordance with section C.4.1.2 (b) of the Code
- waste drilling fluids may also be transferred and stored on-site in wastewater tanks or to sumps/ tanks on other approved sites to ensure sufficient capacity is always in place to accommodate the freeboard requirements
 - additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump
 - the excess drilling fluids may be transferred into an above ground storage tank that meets section B.4.16.2(h) of the Code to assist with drying out the muds and cuttings.

...

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025		
Current EMP text					Amended EMP text						
7.2 Groundwater Management Subplan					7.2 Groundwater Management Subplan						
Activities		Management Tasks			Activities		Management Tasks				
DST Operations – Subsurface activities		<ul style="list-style-type: none"> Enclosed tanks and open tanks with sufficient freeboard (1:1000 year 72-hour storm event) to be used to manage rainfall ingress into wastewater storages. 			DST Operations – Subsurface activities		<ul style="list-style-type: none"> Open sumps and tanks with sufficient freeboard (1:1000 year 72-hour storm event) to be used to manage rainfall ingress into wastewater storages. 				
7.6 Waste and Wastewater Management Subplan					7.6 Waste and Wastewater Management Subplan						
Activities		Management Tasks			Activities		Management Tasks				
Drilling Fluids, Muds, and Cuttings		<ul style="list-style-type: none"> The excess drilling fluids may be transferred into an above ground storage tank that meets section B.4.16.2(h) of the Code. The removal of the drilling fluids will assist in the drying out the muds and cuttings The tank and pits will be designed in accordance with Section C.7.1 of the Code to allow 1:1,000 ARI freeboard as calculated in Section 3.2 of Appendix F. The opened tanks and pits will be marked with the appropriate freeboard for the season to ensure capacity is available, including 1.3 m freeboard during the wet season. The pit and tanks will be fitted with fauna ladders, and the lease pad fenced off from Stock and other larger fauna species. 			Drilling Fluids, Muds, and Cuttings		<ul style="list-style-type: none"> Drilling fluids may be transferred into an above ground storage tank on the well pad or on another approved site that meets section B.4.16.2(h) of the Code. The transfer of drilling fluids between sites ensures sufficient capacity is always in place to accommodate freeboard requirements. The removal of the drilling fluids will assist in the drying out the muds and cuttings. The tank and pits-sumps will be designed in accordance with Section C.7.1 of the Code to allow 1:1,000 ARI wet season freeboard as calculated in Section 3.2 of Appendix F. Additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump. The open tanks and sumps will be marked with the appropriate freeboard for the season to ensure capacity is available, including 0.3 m dry season freeboard and 1.3 m wet season freeboard. The pit and tanks will be fitted with fauna ladders, and the well site fenced off from stock and other larger fauna species. 				
Produced Water and Flowback Fluids		<ul style="list-style-type: none"> Above ground closed top storage tanks will be designed and constructed in accordance with Australian Standards (including AS3990 Mechanical Equipment – Steel Work, AS1170.1 Hydrostatic loading, AS1170.2 Wind Rating (cyclonic wind rating) and AS1554.1 Structural Welding Procedure) including: <ul style="list-style-type: none"> Designed to withstand bushfire attack (20 m firebreak, plus 20 m APZ) and meet local wind loading considerations. Fitted with leak detection system and high-level alarms, calibrated to include a freeboard requirement of 1.3 m for open topped tanks and 0.5 m operating freeboard, for closed topped tanks as per Tank Specification. Above ground open topped treatment tanks will be designed and constructed in accordance with Australian Standards (including AS3990, AS1170.1, AS1170.2 and AS1554.1 Structural Welding Procedure), as per closed top storage tanks, plus: <ul style="list-style-type: none"> Visibly marked with the freeboard level (1.3 m). Fitted with fauna ladders and minimises access point as far as reasonably practicable for fauna. All wastewater stored in an open topped treatment tank will be transferred to an enclosed storage tank at least eight (8) hours before the onset of a significant rainfall event (as per Section 3.2 of WWMP (Appendix F) 			Produced Water and Flowback Fluids		<ul style="list-style-type: none"> Above ground closed top storage tanks will be designed and constructed in accordance with Australian Standards (including AS3990 Mechanical Equipment – Steel Work, AS1170.1 Hydrostatic loading, AS1170.2 Wind Rating (cyclonic wind rating) and AS1554.1 Structural Welding Procedure) including: <ul style="list-style-type: none"> Designed to withstand bushfire attack (20 m firebreak) and meet local wind loading considerations. An additional 20 m buffer of managed vegetation may be established as an asset protection zone when the site is manned and operational. When sites are unmanned and infrastructure is removed, the combined well and tank pad surface areas is sufficient buffer to meet APZ criteria, eliminating the need for an additional perimeter APZ. Fitted with leak detection system and high-level alarms, calibrated-as per Tank Specification. Above ground open topped treatment tanks will be designed and constructed in accordance with Australian Standards (including AS3990, AS1170.1, AS1170.2 and AS1554.1 Structural Welding Procedure), as per closed top storage tanks, plus: <ul style="list-style-type: none"> Visibly marked with the freeboard level (i.e. 0.3 m dry season and 1.3 m wet season). Fitted with fauna ladders and minimises access point as far as reasonably practicable for fauna. All wastewater stored in an open topped treatment tanks will be transferred to an enclosed storage tank at least eight (8) hours before the onset of a significant rainfall event (as per Section 3.2 of WWMP (Appendix F) 				
Implementation					Implementation						
Environmental performance standards		Measurement criteria		Records			Environmental performance standards		Measurement criteria		Records
SWP7.6.2 Freeboard in open-topped tanks and sump maintained.		<ul style="list-style-type: none"> No overtopping event occurrence. All tanks marked with freeboard level. Daily inspections confirm wastewater levels do not exceed freeboard. Where exceedance of freeboard are identified, incident management system and corrective actions evident. 		<ul style="list-style-type: none"> Records show daily wet season weather forecast checks and inspections records. Daily inspections records maintained during wastewater storage activities. Report to Minister. 			SWP7.6.2 Freeboard in open-topped tanks and sump maintained.		<ul style="list-style-type: none"> No overtopping event occurrence. All open drilling sumps and tanks marked with seasonal freeboard levels (e.g. 0.3 m dry season; 1.3 m wet season). (Noting that 		<ul style="list-style-type: none"> Records show daily wet season weather forecast checks and inspections records.
ALARP Statement		Engineering			Storage of waste reduce risk of release (i.e. banded, secured).						

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
Current EMP text				Amended EMP text					
<ul style="list-style-type: none"> Use existing approved wastewater treatment plants already approved by Department of Health. Use of enclosed tanks, double-lined with leak detection. Secondary containment for all pumps and high-risk spill locations. Freeboard requirements (based on 1:1,000-year average recurrence interval rainfall estimates). Produced water and flowback fluid volumes will be managed to maximise evaporation to reduce volumes. Drilling fluids evaporated as much as possible; pending the weather window and freeboard requirements (minimum 1.3 m during wet season) with remaining fluid to be appropriately transported and disposed of at a licenced facility. 						<p>additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump.</p> <ul style="list-style-type: none"> Daily inspections during operations confirm wastewater levels do not exceed freeboard. Remote telemetry used when site is unmanned. Where exceedance of freeboard are identified, incident management system and corrective actions evident. 		<ul style="list-style-type: none"> Daily inspections records maintained during wastewater storage activities. Report to Minister. 	
				ALARP Statement		Engineering		<ul style="list-style-type: none"> Storage of waste reduce risk of release (i.e. bunded, secured). Use existing approved wastewater treatment plants already approved by Department of Health. Use of enclosed tanks, double-lined with leak detection. Secondary containment for all pumps and high-risk spill locations. Wet season freeboard requirements (based on 1:1,000-year average recurrence interval rainfall estimates). Produced water and flowback fluid volumes will be managed to maximise evaporation to reduce volumes. Drilling fluids evaporated as much as possible; pending the weather window and freeboard requirements (0.3 m dry season; 1.3 m wet season) with remaining fluid to be appropriately transported and disposed of at a licenced facility. (Noting that additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump.) 	
7.9 Biodiversity Management Sub-plan Management Tasks <ul style="list-style-type: none"> Well pad areas will be fenced. Scientific Uncertainty Earthen freshwater pits and drilling pits will be fenced in to minimise the chance of animals having any interaction with the contents of the pits whether freshwater or drilling fluids.				7.9 Biodiversity Management Sub-plan Management Tasks <ul style="list-style-type: none"> Well site will be fenced. Scientific Uncertainty The well site will be fenced to minimise the chance of animals having any interaction with the contents of the pits whether freshwater or drilling fluids.					

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
------------------------	----------------------------	------------------	--	----------------------	--------	--------------	---	-------------	-----------------

Current EMP text

Amended EMP text

Appendix A DST Environmental Risk Assessment

Risk #	Activity Description	Aspect	Potential Impact	Inherent Risk Assessment			Relevant Section of NT Onshore Petroleum Code of Practice for Compliance	Mitigation Measures <i>(Note mitigation summary, full mitigation required are presented in Section 7.0 of the EMP and associated Appendices)</i>	Residual Risk Assessment			ALARP Discussion (Hierarchy of Controls) <i>Elim – Elimination Sub – Substitution Eng – Engineering Controls Adm – Procedures and Administrative Controls</i>
				Environment and Community					Environment and Community			
				Consequence	Likelihood	Risk			Consequence	Likelihood	Risk	
3	Subsurface activities resulting in contamination of aquifers.	Groundwater Contamination	Failure of liquid storage on the surface causes impacts to groundwater quality in shallow / utilised aquifers. Spills or leakages associated with: <ul style="list-style-type: none"> incorrect surface storage of drilling fluids, muds and cuttings, stimulation fluids/flow back water/diesel transportation of chemicals (including flowback) drilling activities overlapping or failure of flowback tanks leakage from storage containers, tanks and sumps. 	3	4	M	B.4.2 B.4.17	Comply with the minimum requirements of the NT Onshore Petroleum CoP for Wastewater Management, including: <p>Prevent</p> <ul style="list-style-type: none"> Separation distance between the surface and the closest regional aquifer (Anthony Lagoon) anticipated to be between 100 to 300 meters. SPRP (Appendix G) developed and implemented to prevent, detect and remediate any spills. Wastewater Management Plan (Appendix F) developed to manage wastewater. Enclosed tanks and open tanks with sufficient freeboard (1:1,000 year 72-hour storm event) to be used to manage rainfall ingress into wastewater storages. All drill and completions wastewater stored over the wet season to be able to be pumped into enclosed storages within 72 hours where significant rainfall predicted. Tanks manifolds to be designed to ensure each tank is isolated to prevent multiple tanks draining. Flowback storage within double lined tanks with sufficient freeboard, water level monitoring and leak detection to prevent leaks/spills or overtopping. Wastewater tanks are designed to prevent the risk of failure from overtopping, wall failure, explosion and liner damage. Engineered water storage tanks installed with QA/QC plan including inspections, leak testing and hydraulic loading prior to commissioning. Sites will be manned during flowback activities. <p>Detect</p> <ul style="list-style-type: none"> Wastewater storage areas will be inspected daily during operation and after a significant rainfall event (greater than 20 mm in 24-hour period). <p>Respond</p> <ul style="list-style-type: none"> SPRP (Appendix G) to be implemented. 	3	1	L	Hierarchy of controls as per Risk Reference 1

Risk #	Activity Description	Aspect	Potential Impact	Inherent Risk Assessment			Relevant Section of NT Onshore Petroleum Code of Practice for Compliance	Mitigation Measures <i>(Note mitigation summary, full mitigation required are presented in Section 7.0 of the EMP and associated Appendices)</i>	Residual Risk Assessment			ALARP Discussion (Hierarchy of Controls) <i>Elim – Elimination Sub – Substitution Eng – Engineering Controls Adm – Procedures and Administrative Controls</i>
				Environment and Community					Environment and Community			
				Consequence	Likelihood	Risk			Consequence	Likelihood	Risk	
3	Subsurface activities resulting in contamination of aquifers.	Groundwater Contamination	Failure of liquid storage on the surface causes impacts to groundwater quality in shallow / utilised aquifers. Spills or leakages associated with: <ul style="list-style-type: none"> incorrect surface storage of drilling fluids, muds and cuttings, stimulation fluids/flow back water/diesel transportation of chemicals (including flowback) drilling activities overlapping or failure of flowback tanks leakage from storage containers, tanks and sumps. 	3	4	M	B.4.2 B.4.17	Comply with the minimum requirements of the NT Onshore Petroleum CoP for Wastewater Management, including: <p>Prevent</p> <ul style="list-style-type: none"> Separation distance between the surface and the closest regional aquifer (Anthony Lagoon) anticipated to be between 100 to 300 meters. SPRP (Appendix G) developed and implemented to prevent, detect and remediate any spills. Wastewater Management Plan (Appendix F) developed to manage wastewater. Enclosed tanks and open tanks with sufficient wet season freeboard (1:1,000 year 72-hour storm event) to be used to manage rainfall ingress into wastewater storages. All drill and completions wastewater stored over the wet season to be able to be pumped into enclosed storages within 72 hours where significant rainfall predicted. Tanks manifolds to be designed to ensure each tank is isolated to prevent multiple tanks draining. Flowback storage within double lined tanks with sufficient freeboard, water level monitoring and leak detection to prevent leaks/spills or overtopping. Wastewater tanks are designed to prevent the risk of failure from overtopping, wall failure, explosion and liner damage. Engineered water storage tanks installed with QA/QC plan including inspections, leak testing and hydraulic loading prior to commissioning. Sites will be manned during flowback activities. <p>Detect</p> <ul style="list-style-type: none"> Wastewater storage areas will be inspected daily during operation and after a significant rainfall event (greater than 20 mm in 24-hour period). <p>Respond</p> <ul style="list-style-type: none"> SPRP (Appendix G) to be implemented. 	3	1	L	Hierarchy of controls as per Risk Reference 1

Risk #	Activity Description	Aspect	Potential Impact	Inherent Risk Assessment			Relevant Section of NT Onshore Petroleum Code of Practice for Compliance	Mitigation Measures <i>(Note mitigation summary, full mitigation required are presented in Section 7.0 of the EMP and associated Appendices)</i>	Residual Risk Assessment			ALARP Discussion (Hierarchy of Controls) <i>Elim – Elimination Sub – Substitution Eng – Engineering Controls Adm – Procedures and Administrative Controls</i>
				Environment and Community					Environment and Community			
				Consequence	Likelihood	Risk			Consequence	Likelihood	Risk	
Biodiversity Management												
24	Exploration Activities- access track, water bores, lease pads and camp operations	Native fauna and stock - disturbance	Impacts to fauna within the vicinity of DST activities, through the physical presence of machinery and people, are likely to occur.	1	4	L	A.3.5	Comply with the minimum requirements of the NT Onshore Petroleum CoP, including: <p>Prevent</p> <ul style="list-style-type: none"> Site inductions will ensure that all personnel are aware of their obligations and know the correct procedures for fauna encounters. Well pad areas will be fenced. Fauna ladders are used on the storage tanks. Personnel will be prohibited from interfering with wildlife. Personnel will be prohibited from bringing domestic pets onto the Program area. Avoid driving at dawn and dusk to minimise fauna mortality. Vehicle movement will be restricted to existing access roads at a suitable speed limit. <p>Detect</p> <ul style="list-style-type: none"> Inspection of open tanks and sumps for fauna activity. Wastewater storage areas will be monitored for: <ul style="list-style-type: none"> General observations recorded of bird and other fauna around wastewater storages. Daily checks of open tanks and pits for fauna mortality when in operations. Weekly checks of fauna mortality around lease pad (~50 m). Inspect for fauna carcasses during tank and pit emptying or decommissioning. <p>Respond</p> <ul style="list-style-type: none"> In event trapped wildlife encountered in open tanks and sumps, implement recovery. Any known interaction of wildlife with wastewater will be documented and if needed preventative measures in place will be modified accordingly to further reduce the likelihood of fauna interaction. 	1	4	L	Sub <ul style="list-style-type: none"> Chemical Risk Assessment (Appendix C) completed to evaluate potential hazards of chemicals and the potential for exposures to human and environmental receptors and the exposure pathways. Eng <ul style="list-style-type: none"> Buffers, fencing and use of fauna ladders to reduce potential for wildlife, stock and humans being impacted by activities. Adm <ul style="list-style-type: none"> Monitoring and Auditing (refer Section 8.7 and Section 8.8), including Photo Monitoring. Records of observed presence, with identification if possible, will be maintained within Sweetpea's GIS and if required provided to DEPWS.
25	Open Storage Tanks and Mud Sumps	Native fauna and stock - loss or endangerment	Loss or endangerment of threatened and native fauna species and stock from open storage tanks and unfenced drill sumps from: <ul style="list-style-type: none"> trapping and drowning in storage tanks and sumps contaminants in water and soil pass through the food chain and bio accumulate in fauna. 	1	4	L	A.3.5 C.3.1 C.7.1 C.7.2	Comply with the minimum requirements of the NT Onshore Petroleum CoP, including: <p>Prevent</p> <ul style="list-style-type: none"> Site inductions will ensure that all personnel are aware of their obligations and know the correct procedures for fauna encounters. Well pad areas will be fenced. Fauna ladders are used on the storage tanks. Personnel will be prohibited from interfering with wildlife. Personnel will be prohibited from bringing domestic pets onto the Program area. Avoid driving at dawn and dusk to minimise fauna mortality. Vehicle movement will be restricted to existing access roads at a suitable speed limit. <p>Detect</p> <ul style="list-style-type: none"> Inspection of open tanks and sumps for fauna activity. Wastewater storage areas will be monitored for: <ul style="list-style-type: none"> General observations recorded of bird and other fauna around wastewater storages. Daily checks of open tanks and pits for fauna mortality when in operations. Weekly checks of fauna mortality around lease pad (~50 m). Inspect for fauna carcasses during tank and pit emptying or decommissioning. <p>Respond</p> <ul style="list-style-type: none"> In event trapped wildlife encountered in open tanks and sumps, implement recovery. Any known interaction of wildlife with wastewater will be documented and if needed preventative measures in place will be modified accordingly to further reduce the likelihood of fauna interaction. 	1	4	L	Sub <ul style="list-style-type: none"> Chemical Risk Assessment (Appendix C) completed to evaluate potential hazards of chemicals and the potential for exposures to human and environmental receptors and the exposure pathways. Eng <ul style="list-style-type: none"> Buffers, fencing and use of fauna ladders to reduce potential for wildlife, stock and humans being impacted by activities. Adm <ul style="list-style-type: none"> Monitoring and Auditing (refer Section 8.7 and Section 8.8), including Photo Monitoring. Records of observed presence, with identification if possible, will be maintained within Sweetpea's GIS and if required provided to DEPWS. <p>A desktop assessment of the project area revealed that five threatened fauna species may occur. The project area is highly unlikely to hold a Nationally significant population of these species, therefore the consequence of impacts to native fauna is reduced. If mitigation measures are effectively implemented the risk profile will remain low.</p> <p>The use of open top tanks for use in evaporation of wastewater could if consumed be a risk to fauna due to the salinity and chemistry of flowback water. The risk is minimal as the salinity levels itself acts as a deterrent from fauna consuming or interacting with wastewater. Earthen freshwater pits and drilling pits will be fenced in to minimise the chance of animals having any interaction with the contents of the pits whether freshwater or drilling fluids.</p>

Risk #	Activity Description	Aspect	Potential Impact	Inherent Risk Assessment			Relevant Section of NT Onshore Petroleum Code of Practice for Compliance	Mitigation Measures <i>(Note mitigation summary, full mitigation required are presented in Section 7.0 of the EMP and associated Appendices)</i>	Residual Risk Assessment			ALARP Discussion (Hierarchy of Controls) <i>Elim – Elimination Sub – Substitution Eng – Engineering Controls Adm – Procedures and Administrative Controls</i>
				Environment and Community					Environment and Community			
				Consequence	Likelihood	Risk			Consequence	Likelihood	Risk	
Biodiversity Management												
24	Exploration Activities- access track, water bores, lease pads and camp operations	Native fauna and stock - disturbance	Impacts to fauna within the vicinity of DST activities, through the physical presence of machinery and people, are likely to occur.	1	4	L	A.3.5	Comply with the minimum requirements of the NT Onshore Petroleum CoP, including: <p>Prevent</p> <ul style="list-style-type: none"> Site inductions will ensure that all personnel are aware of their obligations and know the correct procedures for fauna encounters. Well site will be fenced. Fauna ladders are used on the storage tanks. Personnel will be prohibited from interfering with wildlife. Personnel will be prohibited from bringing domestic pets onto the Program area. Avoid driving at dawn and dusk to minimise fauna mortality. Vehicle movement will be restricted to existing access roads at a suitable speed limit. <p>Detect</p> <ul style="list-style-type: none"> Inspection of open tanks and sumps for fauna activity. Wastewater storage areas will be monitored for: <ul style="list-style-type: none"> General observations recorded of bird and other fauna around wastewater storages. Daily checks of open tanks and pits for fauna mortality when in operations. Weekly checks of fauna mortality around lease pad (~50 m). Inspect for fauna carcasses during tank and pit emptying or decommissioning. <p>Respond</p> <ul style="list-style-type: none"> In event trapped wildlife encountered in open tanks and sumps, implement recovery. Any known interaction of wildlife with wastewater will be documented and if needed preventative measures in place will be modified accordingly to further reduce the likelihood of fauna interaction. 	1	4	L	Sub <ul style="list-style-type: none"> Chemical Risk Assessment (Appendix C) completed to evaluate potential hazards of chemicals and the potential for exposures to human and environmental receptors and the exposure pathways. Eng <ul style="list-style-type: none"> Buffers, fencing and use of fauna ladders to reduce potential for wildlife, stock and humans being impacted by activities. Adm <ul style="list-style-type: none"> Monitoring and Auditing (refer Section 8.7 and Section 8.8), including Photo Monitoring. Records of observed presence, with identification if possible, will be maintained within Sweetpea's GIS and if required provided to DEPWS.
25	Open Storage Tanks and Mud Sumps	Native fauna and stock - loss or endangerment	Loss or endangerment of threatened and native fauna species and stock from open storage tanks and unfenced drill sumps from: <ul style="list-style-type: none"> trapping and drowning in storage tanks and sumps contaminants in water and soil pass through the food chain and bio accumulate in fauna. 	1	4	L	A.3.5 C.3.1 C.7.1 C.7.2	Comply with the minimum requirements of the NT Onshore Petroleum CoP, including: <p>Prevent</p> <ul style="list-style-type: none"> Site inductions will ensure that all personnel are aware of their obligations and know the correct procedures for fauna encounters. Well site will be fenced. Fauna ladders are used on the storage tanks. Personnel will be prohibited from interfering with wildlife. Personnel will be prohibited from bringing domestic pets onto the Program area. Avoid driving at dawn and dusk to minimise fauna mortality. Vehicle movement will be restricted to existing access roads at a suitable speed limit. <p>Detect</p> <ul style="list-style-type: none"> Inspection of open tanks and sumps for fauna activity. Wastewater storage areas will be monitored for: <ul style="list-style-type: none"> General observations recorded of bird and other fauna around wastewater storages. Daily checks of open tanks and pits for fauna mortality when in operations. Weekly checks of fauna mortality around lease pad (~50 m). Inspect for fauna carcasses during tank and pit emptying or decommissioning. <p>Respond</p> <ul style="list-style-type: none"> In event trapped wildlife encountered in open tanks and sumps, implement recovery. Any known interaction of wildlife with wastewater will be documented and if needed preventative measures in place will be modified accordingly to further reduce the likelihood of fauna interaction. 	1	4	L	Sub <ul style="list-style-type: none"> Chemical Risk Assessment (Appendix C) completed to evaluate potential hazards of chemicals and the potential for exposures to human and environmental receptors and the exposure pathways. Eng <ul style="list-style-type: none"> Buffers, fencing and use of fauna ladders to reduce potential for wildlife, stock and humans being impacted by activities. Adm <ul style="list-style-type: none"> Monitoring and Auditing (refer Section 8.7 and Section 8.8), including Photo Monitoring. Records of observed presence, with identification if possible, will be maintained within Sweetpea's GIS and if required provided to DEPWS. <p>A desktop assessment of the project area revealed that five threatened fauna species may occur. The project area is highly unlikely to hold a Nationally significant population of these species, therefore the consequence of impacts to native fauna is reduced. If mitigation measures are effectively implemented the risk profile will remain low.</p> <p>The use of open top tanks for use in evaporation of wastewater could if consumed be a risk to fauna due to the salinity and chemistry of flowback water. The risk is minimal as the salinity levels itself acts as a deterrent from fauna consuming or interacting with wastewater. Earthen freshwater pits and drilling pits will be fenced in to minimise the chance of animals having any interaction with the contents of the pits whether freshwater or drilling fluids.</p>

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
------------------------	----------------------------	------------------	--	----------------------	--------	--------------	---	-------------	-----------------

Current EMP text

Amended EMP text

Appendix B Erosion and Sediment Control Plan

5.4 ESC Trigger Action Response Plan

Action:

- Inspection of all ESC devices across the worksite and physical water quality testing (physical parameters only) at the lease pad sediment basin should be conducted prior to discharge of water offsite. Water quality discharge indicators include:

- No visible oil, grease or other hydrocarbons
- pH: Between 6.0-8.0
- EC: 250 uS/cm.

The adopted discharge criteria are based on ANZECC 2000 Table 3.3.4 and Table 3.3.5 default trigger values for pH and conductivity (EC, salinity) indicative of slightly disturbed ecosystems in tropical Australia, as well as consideration of the distance and type of nearby sensitive surface water receptors as ephemeral drainage lines and creeks.

5.4 ESC Trigger Action Response Plan

Action:

- Inspection of all ESC devices across the worksite and physical water quality testing (physical parameters only) at the lease pad sediment basin should be conducted prior to discharge of water offsite. Water quality discharge indicators include:

- pH: 5.2 – 9.0¹
- EC: 1,300 µS/cm²
- No visible oil, grease or other hydrocarbons. No visible foams caused by surfactants and detergents. No visible abnormal discolouration.

¹ The proposed minimum pH is reflective of observed regional rainfall pH levels, with pH levels of 5.24 observed at Daly Waters on March 20, 2024. Tamboran has observed pH levels on its enclosed tank lids and sediment basins around the pH of 5 level. Given the large volume of rainwater that falls on a site in a very short period, the pH in the sediment basin is anticipated to be low, before increasing as they interact with the receiving soils. This has been observed in sediment basins onsite, with pH increasing from 5.2 to 6.5 over several hours after a rainfall event due to the low buffer capacity of rainwater. Given the existing pH of rainwater is approximately 5.2, we believe this to be an appropriate release limit for stormwater.

² The proposed limit of 1,300 µS/cm was chosen as it aligns with the EC of the Gum Ridge formation (the main source of water used on proposed sites) and the ANZECC short term irrigation guideline value for moderately sensitive crops (Table 9.2.5 of the ANZEC Guidelines (2000) Volume 3, Chapter 9, Primary industries).
The proposed EC limit is underpinned by modelling designed to assess the changing soil salinities and the potential for impact on the receiving vegetation types, including Eucalyptus, Acacia, Melaleuca species and native grasses which are common to the area. Many of these species have been shown to have a moderate to high tolerance to salinity.
The results of the modelling indicates the maximum root zone salinity will be in the order of 1.6 dS/m (for a sandy loam) to 1.7 dS/m (for a clay). This is below the likely vegetation root zone salinity of the vegetation types in the area. Also, the sodium adsorption ratio (SAR) for the Gum Ridge Formation was calculated at 2, which when combined with the EC values, indicates that the release of stormwater based on the revised release criteria is unlikely to cause soil structural issues.
The adopted discharge criteria are widely used by Tamboran at its other operational sites on EP 117, EP 98 and EP 76, with no negative effects on soil properties or native vegetation.

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
-----------------	----------------------------	-----------	--	---------------	--------	-------	---	------	-----------------

Current EMP text

Amended EMP text

Appendix F Wastewater Management Plan

2.7 Relevance to the Code

Table 1 WWMP Contents in accordance with the Code

Reference	Mandatory requirements	Section of this Plan
C.7.1.1	Wastewater treatment, reuse and disposal	
C.7.1.1(a)	iv Specify minimum freeboard for treatment infrastructure to accommodate total rainfall anticipated (based on 1:1,000-year average recurrence interval rainfall estimates, as determined in C.7.1 (c) v.) for the period that treatment infrastructure contains wastewater	Section 3.2 and Section 5.0

2.7 Relevance to the Code

Table 1 WWMP Contents in accordance with the Code

Reference	Mandatory requirements	Section of this Plan
C.7.1.1	Wastewater treatment, reuse and disposal	
C.7.1.1(a)	iv Specify minimum wet season freeboard of 1.3 m for treatment infrastructure (drilling sumps and open tanks) to accommodate total rainfall anticipated (based on 1:1,000-year average recurrence interval rainfall estimates, as determined in C.7.1 (c) v.) for the period that treatment infrastructure contains wastewater. NOTE: A dry season freeboard on drilling sumps and open tanks of 0.3 m applies. Also, additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump.	Section 3.2 and Section 5.0

3.2 Wastewater Storage Considerations

Section C.7.1 of the Code requires that open storage areas have sufficient capacity to provide enough freeboard to accommodate the total rainfall anticipated (based on 1 in 1,000 average recurrence interval (ARI) rainfall rate using Australian Rainfall & Runoff methodologies) for the critical period when there is the greatest risk of overtopping any structures holding wastewater.

To determine the appropriate freeboard allowance, methodology was applied that is used in the determination of peak rainfall events for water storages when assessing failure modes. ...

The 1 in 1,000-year, three (3) month wet season results in a rainfall estimate of 1,289 mm, however confidence bounds show that this could be between 1,054 mm to 1,675 mm. The graph also suggests the trend for the larger events is toward the lower values. ...

Based on the outcome of the assessment, Sweetpea have adopted a freeboard of 1,300 mm (1.3 m) for the 1:1,000 buffer allowance for any open topped wastewater storage. Sweetpea will ensure that the minimum freeboard requirements will be maintained in accordance with the NT Codes of Practice Section C.5.5 (b).

If open top tanks are utilised on a location and the BOM forecast a “significant rainfall event”, then the forecast rainfall will be deducted from the current freeboard to define the new freeboard. If the new freeboard post significant rainfall event is equal to or higher than the 1.3 m freeboard required, then Sweetpea will transfer enough produced and flowback water from the tank in question into an above ground enclosed top tank to ensure the event will not allow the tank to exceed the freeboard requirements of 1.3 m. This transfer will be completed at least 8 hours before the “significant rainfall event” is forecasted to start.

3.2 Wastewater Storage Considerations

Section C.7.1 of the Code requires that open storage areas have sufficient capacity to provide enough **wet season** freeboard to accommodate the total rainfall anticipated (based on 1 in 1,000 average recurrence interval (ARI) rainfall rate using Australian Rainfall & Runoff methodologies) for the critical period when there is the greatest risk of overtopping any structures holding wastewater.

To determine the appropriate **wet season** freeboard allowance, methodology was applied that is used in the determination of peak rainfall events for water storages when assessing failure modes. ...

The 1 in 1,000-year, three (3) month wet season results in a rainfall **median** of 1,289 mm and 3-month dry season median of 300 mm ...The graph also suggests the trend for the larger events is toward the lower values ...

Based on the outcome of the assessment, a **0.3 m dry season freeboard and 1,300 mm (1.3 m) wet season freeboard will be applied to all drilling sumps and open tanks. (Noting that additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump.)** Sweetpea will ensure that the minimum freeboard requirements will be maintained in accordance with the NT Codes of Practice Section C.5.5 (b).

If open top tanks are utilised on a location and the BOM forecast a “significant rainfall event”, then the forecast rainfall will be deducted from the current freeboard to define the new freeboard. If the new freeboard post significant rainfall event is equal to or higher than the 1.3 m **wet season** freeboard required, then Sweetpea will transfer enough produced and flowback water from the tank in question into an above ground enclosed top tank to ensure the event will not allow the tank to exceed the **wet season** freeboard requirements of 1.3 m. This transfer will be completed at least 8 hours before the “significant rainfall event” is forecasted to start.

4.0 Risk Assessment

Table 3 Wastewater Risk Assessment and ALARP Statement

ALARP Statement	The risk mitigation measures outlined in the DST EMP and this Plan meet the required environmental performance standards for management of wastewater in accordance with Part C of the Code, including reference to the DST EMP Appendix K Emergency Response Plan and Appendix G Spill Prevention and Response Plan. Controls above best practice are unlikely to reduce the risk to wildlife, stock and human receptors, as well as the environment any further. Based upon the risk being ranked as a ‘low’, the risk is determined to be ALARP.
Eliminate	<ul style="list-style-type: none"> No discharge or reinjection of wastewater Only use chemicals of low concern when standard chemical handling, storage and disposal practices are used. Use chemicals that are biodegradable where possible.

4.0 Risk Assessment

Table 3 Wastewater Risk Assessment and ALARP Statement

ALARP Statement	The risk mitigation measures outlined in the DST EMP and this Plan meet the required environmental performance standards for management of wastewater in accordance with Part C of the Code, including reference to the DST EMP Appendix K Emergency Response Plan and Appendix G Spill Prevention and Response Plan. Controls above best practice are unlikely to reduce the risk to wildlife, stock and human receptors, as well as the environment any further. Based upon the risk being ranked as a ‘low’, the risk is determined to be ALARP.
Eliminate	<ul style="list-style-type: none"> No discharge or reinjection of wastewater Only use chemicals of low concern when standard chemical handling, storage and disposal practices are used. Use chemicals that are biodegradable where possible. Drilling fluids and HFS fluids shall not contain benzene, toluene, ethylbenzene, or xylene (BTEX) above the levels prescribed in section B.5 of the Code

	<ul style="list-style-type: none"> Drilling fluids and HFS fluids shall not contain benzene, toluene, ethylbenzene, or xylene (BTEX) above the levels prescribed in section B.5 of the Code Eliminate the generation of wastewaters through design modification (i.e. reuse options)
Substitute	<ul style="list-style-type: none"> Chemical Risk Assessment (DST EMP Appendix C) completed to evaluate potential hazards of chemicals and the potential for exposures to human and environmental receptors and the exposure pathways
Engineering	<ul style="list-style-type: none"> Use of enclosed tanks, double-lined with leak detection. Secondary containment for all pumps and high-risk spill locations. Freeboard requirements (based on 1:1,000-year average recurrence interval rainfall estimates). Produced water and flowback fluid volumes will be managed to maximise evaporation to reduce volumes. Drilling fluids evaporated as much as possible; pending the weather window and freeboard requirements (minimum 1.3 m during the wet season for open topped tanks) with remaining fluid to be appropriately transported and disposed of at a licenced facility. Buffers, fencing and use of fauna ladders to reduce potential for wildlife, stock and humans being impacted by activities.

	<ul style="list-style-type: none"> Eliminate the generation of wastewaters through design modification (i.e. reuse options)
Substitute	<ul style="list-style-type: none"> Chemical Risk Assessment (DST EMP Appendix C) completed to evaluate potential hazards of chemicals and the potential for exposures to human and environmental receptors and the exposure pathways
Engineering	<ul style="list-style-type: none"> Use of enclosed tanks, double-lined with leak detection. Secondary containment for all pumps and high-risk spill locations. Wet season freeboard requirements on drilling sumps and open tanks (based on 1:1,000-year average recurrence interval rainfall estimates). Produced water and flowback fluid volumes will be managed to maximise evaporation to reduce volumes. Drilling fluids evaporated as much as possible; pending the weather window and wet season freeboard requirements (minimum 1.3 m during the wet season for drilling sumps and open topped tanks) with remaining fluid to be appropriately transported and disposed of at a licenced facility. NOTE: A dry season freeboard on drilling sumps and open tanks of 0.3 m applies. Also, additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump. Buffers, fencing and use of fauna ladders to reduce potential for wildlife, stock and humans being impacted by activities.

5.1 Management Measures

Table 4 Wastewater Management and Implementation for DST activities

Activity	Management Tasks
Drilling Fluids, Muds and Cuttings	
Storage	<ul style="list-style-type: none"> All residual drilling fluids, muds and cuttings will be contained in an engineered pit on the well pad that is lined with an impermeable membrane with a coefficient of permeability of less than 10^{-9} m/s tested in accordance with AS1289.6.7.2 and with resistance tearing >0.5kN (ASTM D 4073); static puncture >0.5kN (ASTM D 4833) and tensile strength of >20kN in accordance with Section C.4.1.2 (b) of the Code. Geomembranes will be installed under the liners to prevent punctures and tears. The excess drilling fluids may be transferred into an above ground storage tank that meets Section B.4.16.2(h) of the Code. The removal of the drilling fluids will assist in the drying out the muds and cuttings. The tank and pits will be designed in accordance with Section C.7.1 of the Code to allow 1:1,000 ARI freeboard as calculated in Section 3.2 of this WWMP. The tanks and pits will be marked with the appropriate freeboard for the season to ensure capacity is available, including 1.3 m freeboard during the wet season. The pit will be protected from overland waterflow across the lease pad as detailed in Appendix B Erosion and Sediment Control Plan of the DST EMP. The pit and tanks will be fitted with fauna ladders, and the lease pad fenced off from Stock and other larger fauna species. Routine inspections and monitoring will be undertaken in accordance with Section 6.0 of this Plan.
Handling	<ul style="list-style-type: none"> Drilling muds, cuttings and fluids to be transferred directly from drill rig, via the shakers to the mud sump. Drilling fluids may be recycled back in the well drilling process to reduce the quantity of drilling fluids required for disposal at end of operations. Excess fluids may be pumped via pipelines to an aboveground storage tanks that meets Section B.4.16.2(h) of the Code. Storage volumes will be monitored daily during operations. The quality of all fluids will not contain benzene, toluene, ethylbenzene, or xylene (BTEX) above the prescribed levels detailed in the Code for drilling fluids.

5.1 Management Measures

Table 4 Wastewater Management and Implementation for DST activities

Activity	Management Tasks
Drilling Fluids, Muds and Cuttings	
Storage	<ul style="list-style-type: none"> All residual drilling fluids, muds and cuttings will be contained in an engineered pit on the well pad that is lined with an impermeable membrane with a coefficient of permeability of less than 10^{-9} m/s tested in accordance with AS1289.6.7.2 and with resistance tearing >0.5kN (ASTM D 4073); static puncture >0.5kN (ASTM D 4833) and tensile strength of >20kN in accordance with Section C.4.1.2 (b) of the Code. For example, drilling fluids, muds and cuttings will be stored in engineered lined Coletanche (or similar sumps or wastewater tanks). Geomembranes will be installed under the liners to prevent punctures and tears. Waste drilling fluids may also be transferred and stored on-site in wastewater tanks or to sumps/ tanks on other approved sites to ensure sufficient capacity is always in place to accommodate the freeboard requirements. The excess drilling fluids may be transferred into an above ground storage tank that meets Section B.4.16.2(h) of the Code. The removal of the drilling fluids will assist in the drying out the muds and cuttings. Open tanks and drilling sumps will be designed in accordance with Section C.7.1 of the Code to allow 1:1,000 ARI wet season operational freeboard as calculated in Section 3.2 of this WWMP. The open tanks and drilling sumps will be marked with the appropriate freeboard for the season (e.g. 0.3 m dry season freeboard and 1.3 m wet season freeboard) to ensure capacity is available. Additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump. The drilling sumps will be protected from overland waterflow across the well pad as detailed in Appendix B Erosion and Sediment Control Plan of the DST EMP. The open drilling sumps and tanks will be fitted with fauna ladders, and the well site fenced off from stock and other larger fauna species. Routine inspections and monitoring will be undertaken in accordance with Section 6.0 of this Plan.
Handling	<ul style="list-style-type: none"> Drilling muds, cuttings and fluids to be transferred directly from drill rig, via the shakers to the mud sump or lined tank/ pit (in accordance with section C.4.1.2 of the Code). Drilling fluids may be recycled back in the well drilling process to reduce the quantity of drilling fluids required for disposal at end of operations. Excess fluids may be pumped via pipelines to an aboveground storage tanks that meets Section B.4.16.2(h) of the Code.

	<ul style="list-style-type: none"> • Aboveground tank, sump liners and embankments will be inspected weekly during operations. • Dried drilling muds and cuttings will be covered during the wet season to prevent ingress of rainwater. • In the unlikely event of a spill, Sweetpea’s Spill Prevention and Response Plan and Emergency Response Plan (Appendix G and Appendix K of the DST EMP) will be enacted. • The potential for accumulation of NORM will be monitored to ensure risks to the health and safety of people and the environment. The hazard of NORMs in cuttings will be assessed using real-time, quantitative monitoring of NORM concentrations from X-ray fluorescence data as required by the NT <i>Radiation Protection Act 2004</i>. • NORMs above reportable thresholds are not likely to be generated. However, if NORMs occur at levels that exceed reportable thresholds then a separate waste management plan will be developed for handling of NORM at an appropriate licensed waste disposal facility. 		<ul style="list-style-type: none"> • Storage volumes will be monitored daily during manned operations. • The quality of all fluids will not contain benzene, toluene, ethylbenzene, or xylene (BTEX) above the prescribed levels detailed in the Code for drilling fluids. • Aboveground tank, sump liners and embankments will be inspected weekly during manned operations. • During rehabilitation dried drilling muds and cuttings will be covered during the wet season to prevent ingress of rainwater. • In the unlikely event of a spill, Sweetpea’s Spill Prevention and Response Plan and Emergency Response Plan (Appendix G and Appendix K of the DST EMP) will be enacted. • The potential for accumulation of NORM will be monitored to ensure risks to the health and safety of people and the environment. The hazard of NORMs in cuttings will be assessed using real-time, quantitative monitoring of NORM concentrations from X-ray fluorescence data as required by the NT <i>Radiation Protection Act 2004</i>. • NORMs above reportable thresholds are not likely to be generated. However, if NORMs occur at levels that exceed reportable thresholds then a separate waste management plan will be developed for handling of NORM at an appropriate licensed waste disposal facility.
Produced Water and Flowback Fluids		Produced Water and Flowback Fluids	
Storage	<ul style="list-style-type: none"> • All produced water and flowback fluids are to be managed in accordance with section C.4.2 of the Code. • All produced water and flowback fluid will be held in above ground, double line tanks in accordance with Section A.3.8 (g) of the Code and have secondary containment that has sufficient capacity to hold at least 110% of the largest tank utilised. • Liners chosen will be compatible with the wastewater held within. • Above ground closed top storage tanks will be designed and constructed in accordance with Australian Standards (including AS3990 Mechanical Equipment – Steel Work, AS1170.1 Hydrostatic loading, AS1170.2 Wind Rating (cyclonic wind rating) and AS1554.1 Structural Welding Procedure) including: <ul style="list-style-type: none"> – Designed to withstand bushfire attack (20 m Firebreak, plus 20 m APZ) and meet local wind loading considerations. – Fitted with leak detection system and high-level alarms, calibrated to the freeboard requirement of 1.3 m for open topped tanks and 0.5 m for closed topped tanks as per Tank Specification. – Leak detection system capable of detecting leaks between the primary and secondary liner. – Prevent entry of rainwater using a fitted floating cover. – Enclosed top tanks will incorporate a system to remove rainwater from above the floating cover. – Fitted with vents to prevent the build-up of explosive gasses. • Above ground open topped treatment tanks will be designed and constructed in accordance with Australian Standards (including AS3990, AS1170.1, AS1170.2 and AS1554.1 Structural Welding Procedure), as per closed top storage tanks, plus: <ul style="list-style-type: none"> – Visibly marked with the freeboard level (1.3 m). – Fitted with fauna ladders and minimises access point as far as reasonably practicable for fauna. – All wastewater stored in an open topped treatment tank will be transferred to an enclosed storage tank at least eight (8) hours before the onset of a significant rainfall event (as per Section 3.2). • The leak detection system and tank level system used will be equipped with telemetry and will send alerts at predefined levels or if moisture occurs between the liners. • Tanks will have 20 m firebreak, plus additional 20 m asset protection zone surrounding the tank area as per Appendix I of the DST. • Manifolds are designed to prevent siphoning of a tank. • Tanks will be installed with the use of non-return valves used to prevent uncontrolled discharge from multiple tanks should a tank fail. • Liners for all above ground storage tanks will meet or exceed all requirements for permeability, puncture and tear standards. • All secondary containment will be inspected in accordance with Section C.5.5 of the Code. 	Storage	<ul style="list-style-type: none"> • All produced water and flowback fluids are to be managed in accordance with section C.4.2 of the Code. • All produced water and flowback fluid will be held in above ground, double line tanks in accordance with Section A.3.8 (g) of the Code and have secondary containment that has sufficient capacity to hold at least 110% of the largest tank utilised. • Liners chosen will be compatible with the wastewater held within. • Above ground closed top storage tanks will be designed and constructed in accordance with Australian Standards (including AS3990 Mechanical Equipment – Steel Work, AS1170.1 Hydrostatic loading, AS1170.2 Wind Rating (cyclonic wind rating) and AS1554.1 Structural Welding Procedure) including: <ul style="list-style-type: none"> – Designed to withstand bushfire attack (20 m firebreak) and meet local wind loading considerations. An additional 20 m buffer of managed vegetation may be established as an asset protection zone when the site is manned and operational. When sites are unmanned and infrastructure is removed, the combined well and tank pad surface areas are sufficient buffer to meet APZ criteria, eliminating the need for an additional perimeter APZ. – Fitted with leak detection system and high-level alarms, calibrated to the freeboard requirement of 1.3 m for open topped tanks as per Tank Specification. – Leak detection system capable of detecting leaks between the primary and secondary liner. – Prevent entry of rainwater using a fitted floating cover. – Enclosed top tanks will incorporate a system to remove rainwater from above the floating cover. – Fitted with vents to prevent the build-up of explosive gasses. • Above ground open topped treatment tanks will be designed and constructed in accordance with Australian Standards (including AS3990, AS1170.1, AS1170.2 and AS1554.1 Structural Welding Procedure), as per closed top storage tanks, plus: <ul style="list-style-type: none"> – Visibly marked with the freeboard levels (e.g. 0.3 m dry season; 1.3 m wet season). – Fitted with fauna ladders and minimises access point as far as reasonably practicable for fauna. – All wastewater stored in an open topped treatment tank will be transferred to an enclosed storage tank at least eight (8) hours before the onset of a significant rainfall event (as per Section 3.2). • The leak detection system and tank level system used will be equipped with telemetry and will send alerts at predefined levels or if moisture occurs between the liners. • When sites are unmanned, the combined well and tank pad surface areas are sufficient buffer to meet APZ criteria, eliminating the need for an additional perimeter APZ, as per Appendix I of the DST. • Manifolds are designed to prevent siphoning of a tank. • Tanks will be installed with the use of non-return valves used to prevent uncontrolled discharge from multiple tanks should a tank fail. • Liners for all above ground storage tanks will meet or exceed all requirements for permeability, puncture and tear standards. • All secondary containment will be inspected in accordance with Section C.5.5 of the Code.

5.2 Performance Standards and Measurement Criteria

Table 5 Environmental Performance Standards and Measurement Criteria

Environmental performance standards	Measurement criteria	Records
SWP7.6.2	<ul style="list-style-type: none"> No overtopping event occurrence. All tanks marked with freeboard level. Daily inspections confirm wastewater levels do not exceed freeboard. Where exceedance of freeboard are identified, incident management system and corrective actions evident. 	<ul style="list-style-type: none"> Records show daily wet season weather forecast checks and inspections records. Daily inspections records maintained during wastewater storage activities. Report to Minister.

5.2 Performance Standards and Measurement Criteria

Table 5 Environmental Performance Standards and Measurement Criteria

Environmental performance standards	Measurement criteria	Records
SWP7.6.2	<ul style="list-style-type: none"> No overtopping event occurrence. All drilling sumps and open tanks marked with seasonal freeboard level (e.g. 0.3 m dry season; 1.3 m wet season freeboard). Additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump. Daily inspections confirm wastewater levels do not exceed freeboard. Remote telemetry used when site is unmanned. Where exceedance of freeboard are identified, incident management system and corrective actions evident. 	<ul style="list-style-type: none"> Records show daily wet season weather forecast checks and inspections records. Daily inspections records maintained during wastewater storage activities. Report to Minister.

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
-----------------	----------------------------	-----------	--	---------------	--------	-------	---	------	-----------------

Current EMP text

Amended EMP text

Appendix G Spill Prevention and Response Plan

4.0 Potential Spill Materials

Table 2 Potential Spill Material Estimates for each well pad

Chemical	Maximum Volume on Site	Storage Location	Containment/Management
Drilling fluids and cuttings	250 m ³ per well	Mud tank system and pits	<ol style="list-style-type: none"> Drilling fluid will be predominantly water with remaining components of salts and fluid additives. Stored and treated in engineered tanks and pits. Drilling fluids may be recycled between wells where feasible. Disposal considerations: <ul style="list-style-type: none"> Drilling fluids evaporated as much as possible; pending the weather window and freeboard requirements (minimum 1.3m for open topped tank during the wet season) with remaining fluid to be appropriately transported and disposed of at a licenced facility. Drilling cuttings will be in cuttings burial or removed offsite subject to sampling results of cuttings and with approval from DEPWS
Stimulation fluids	55 ML per well pad	Blending and pumping	<ol style="list-style-type: none"> Secondary containment in engineered self-bunded equipment. Disposal will consist of evaporate water as much as possible; pending the weather window and freeboard requirements (minimum 1.3m during the wet season) with remaining fluid to be appropriately transported and disposed of at a licenced facility.

4.0 Potential Spill Materials

Table 2 Potential Spill Material Estimates for each well pad

Chemical	Maximum Volume on Site	Storage Location	Containment/Management
Drilling fluids and cuttings	250 m ³ per well	Mud tank system and pits	<ol style="list-style-type: none"> Drilling fluid will be predominantly water with remaining components of salts and fluid additives. Stored and treated in engineered tanks and pits. Drilling fluids may be recycled between wells where feasible. Disposal considerations: <ul style="list-style-type: none"> Drilling fluids evaporated as much as possible; pending the weather window and freeboard requirements (0.3 m dry season and 1.3 m for wet season for drilling sumps and open topped tanks) with remaining fluid to be appropriately transported and disposed of at a licenced facility as required. Drilling cuttings will be in cuttings burial or removed offsite subject to sampling results of cuttings and with approval from DEPWS
Stimulation fluids	55 ML per well pad	Blending and pumping	<ol style="list-style-type: none"> Secondary containment in engineered self-bunded equipment. Disposal will consist of evaporate water as much as possible; pending the weather window and freeboard requirements (0.3 m dry season and 1.3 m wet season for open topped tanks) with remaining fluid to be appropriately transported and disposed of at a licenced facility as required.

NOTE: Due to the A3 size, Table 3 only shows the following columns:

- “Potential Spill Activity” as a x-reference; and
- “Key Management Controls”, where modifications will be applied

Information in all other columns in Table 3 remains unchanged.

5.0 Spill Scenarios

Table 3 Spill scenario description

Potential Spill Activity	Key Management Controls
1. Loss of containment of fuels from handling and storage activities on site	In accordance with Petroleum CoP, Australian Standards and Industry best practice as detailed Table 2, and: <ol style="list-style-type: none"> Secondary containment in bunded containment area or bunded pallet storage. Any unconsumed chemicals will be removed at completion. Disposal will consist of evaporate water as much as possible; pending the weather window and freeboard requirements (minimum 1.3m during the wet season for open topped tanks) with remaining fluid to be appropriately transported and disposed of at a licenced facility.
2. Loss of containment of wastewater from handling and storage activities on site	
3. Loss of containment of chemicals from handling and storage activities on site	
5. Spill from chemicals and wastewater during transportation on or offsite	In accordance with Petroleum CoP, Australian Standards and Industry best practice as detailed Table 2, and: <ul style="list-style-type: none"> Secondary containment(s) with liner, in engineered selfbunded equipment

NOTE: Due to the A3 size, Table 3 only shows the following columns:

- “Potential Spill Activity” as a x-reference; and
- “Key Management Controls”, where modifications will be applied

Information in all other columns in Table 3 remains unchanged.

5.0 Spill Scenarios

Table 3 Spill scenario description

Potential Spill Activity	Key Management Controls
1. Loss of containment of fuels from handling and storage activities on site	In accordance with Petroleum CoP, Australian Standards and Industry best practice as detailed Table 2, and: <ol style="list-style-type: none"> Secondary containment in bunded containment area or bunded pallet storage. Any unconsumed chemicals will be removed at completion. Disposal will consist of evaporate water as much as possible; pending the weather window and freeboard requirements (0.3 m dry season and 1.3m for wet season for drilling sumps and open topped tanks) with remaining fluid to be appropriately transported and disposed of at a licenced facility, as required.
2. Loss of containment of wastewater from handling and storage activities on site	
3. Loss of containment of chemicals from handling and storage activities on site	

	<ul style="list-style-type: none"> Flowback fluid and produced water will be stored in closed topped tanks and treated in open topped fluid treatment tanks, as per the CoP Open-topped fluid treatment tanks will be designed and operated for the period that treatment infrastructure contains wastewater to accommodate total rainfall anticipated based on the 1:1000 Average Recurrence Interval (ARI). <p>...</p>	5. Spill from chemicals and wastewater during transportation on or offsite	<p>In accordance with Petroleum CoP, Australian Standards and Industry best practice as detailed Table 2, and:</p> <ul style="list-style-type: none"> Secondary containment(s) with liner, in engineered self-bunded equipment Flowback fluid and produced water will be stored in closed topped tanks and treated in open topped fluid treatment tanks, as per the CoP Open-topped fluid treatment tanks will be designed and operated for the period that treatment infrastructure contains wastewater to accommodate total wet season rainfall anticipated based on the 1:1000 Average Recurrence Interval (ARI): <ul style="list-style-type: none"> A dry season freeboard on drilling sumps and open tanks of 0.3 m applies. A wet season freeboard on drilling sumps and open tanks of 1.3 m applies. Additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump. <p>...</p>
9. Overflow due to rainfall event of flowback fluid from storage tank drilling pit and any containment vessel	<p>In accordance with Petroleum CoP, Australian Standards and Industry best practice as detailed Table 2, and:</p> <ul style="list-style-type: none"> Tank pad bunded will be capable of holding the carrying capacity of wastewater on the tank pad. All produced water and flowback fluid must be held in above-ground enclosed tanks if a significant rainfall event is predicted. The opened tanks and pits will be marked with the appropriate freeboard for the season to ensure capacity is available, including 1.3 m freeboard during the wet season. Any proposed produced water and flowback fluid treatment processes occurring outside of enclosed tanks will have minimum freeboard for treatment infrastructure to accommodate total rainfall anticipated (based on 1:1,000 year ARI rainfall estimates). 	9. Overflow due to rainfall event of flowback fluid from storage tank drilling pit and any containment vessel	<p>In accordance with Petroleum CoP, Australian Standards and Industry best practice as detailed Table 2, and:</p> <ul style="list-style-type: none"> Tank pad bunded will be capable of holding the carrying capacity of wastewater on the tank pad. All produced water and flowback fluid must be held in above-ground enclosed tanks if a significant rainfall event is predicted. The opened tanks and pits will be marked with the appropriate freeboard for the season to ensure capacity is available, including 0.3 m freeboard during the dry season and 1.3 m freeboard during the wet season. Additional controls must be implemented where the sump capacity falls below the 1:1000 ARI 7-day total rainfall design criteria of 580 mm within the sump. Any proposed produced water and flowback fluid treatment processes occurring outside of enclosed tanks will have minimum freeboard for treatment infrastructure to accommodate total rainfall anticipated (based on 1:1,000 year ARI rainfall estimates). In other words, a 0.3 m dry season freeboard and 1.3 m wet season freeboard.
<p>7.0 Spill Prevention Measures 7.1 General Controls</p> <p>...</p> <ul style="list-style-type: none"> Tanks and drilling pits will be designed to prevent livestock and wildlife access to hazardous material through fencing or other barrier. 	<p>7.0 Spill Prevention Measures 7.1 General Controls</p> <p>...</p> <ul style="list-style-type: none"> Tanks and drilling sumps will be designed to prevent livestock and wildlife access to hazardous material through well site fencing or other barrier. 		
<p>9.4 Clean-up Procedure 9.4.1 Spill clean up In the event of a spill: ...</p> <ul style="list-style-type: none"> Prevent livestock and wildlife access to hazardous material through fencing or other barrier <p>...</p>	<p>9.4 Clean-up Procedure 9.4.1 Spill clean up In the event of a spill: ...</p> <ul style="list-style-type: none"> Prevent livestock and wildlife access to hazardous material through existing well site fencing or other barrier as required <p>...</p>		

Interest holder	Sweetpea Petroleum Pty Ltd	EMP Title	Well Drilling, Hydraulic Fracture Stimulation and Well Testing Environment Management Plan	Unique EMP ID	SWP4-3	Mod #	1	Date	24 January 2025
------------------------	----------------------------	------------------	--	----------------------	--------	--------------	---	-------------	-----------------

Current EMP text

Amended EMP text

Appendix I Bushfire Management plan

Offsite stakeholders	Contact details	Name
National Response Centre	1800 076 251	24/7 contact line
Emergency	000 or 112 mobile	
Bushfire NT Katherine office (Savanna)	(08) 8973 8876	
Bushfire NT Alice Springs office (Barkly)	(08) 8952 3066	
NAFI North	https://www.firenorth.org.au/nafi3/	
Secure NT (Fire Bans)	https://securent.nt.gov.au/alerts	
Fire incident map	https://www.pfes.nt.gov.au/incidentmap/	

The following minor edits have been made to the 9 BMPs:

Offsite stakeholders: Delete reference to the National Response Centre. This contact is obsolete.

Offsite stakeholders	Contact details	Name
National Response Centre	1800 076 251	24/7 contact line
Emergency	000 or 112 mobile	
Bushfire NT Katherine office (Savanna)	(08) 8973 8876	
Bushfire NT Alice Springs office (Barkly)	(08) 8952 3066	
NAFI North	https://www.firenorth.org.au/nafi3/	
Secure NT (Fire Bans)	https://securent.nt.gov.au/alerts	
Fire incident map	https://www.pfes.nt.gov.au/incidentmap/	

Sweetpea's Exploration Program Fire Management Zones – Bushfire Management Actions	
Well Pads and Tank Pads	<ul style="list-style-type: none"> Remove all vegetation within the lease pad area and implement erosion and sediment control plan. Treat emerging vegetation with herbicide. On fire ban days or times of higher fire danger, hot works are to be conducted with increased fire protection measures and with approval from the Bushfire Officer. Open air fires cannot be lit without a permit under the Bushfire Management Act 2016.
Fire management break	<ul style="list-style-type: none"> A 10 m wide cleared perimeter around well pads and tank pads. An additional 10 m wide bare earth fire break incorporating a 4 m wide fire access trail.
Fire access trails	<ul style="list-style-type: none"> Create and maintain 4 m wide access trail by grading or spraying.
Asset Protection Zone (APZ)	<ul style="list-style-type: none"> Site Manager to assess fuel load prior to camp establishment and again at end of wet season if infrastructure is still in place. Establish a 20 m low fuel zone around well pads and lease pads. Monitor for grassy weeds and control where appropriate. If deemed necessary, conduct controlled burns where other controls are not effective and in consultation with neighbouring properties. Ensure 4 m wide fire access trail around the perimeter of the asset protection zone is trafficable by fire fighting appliances.
Civil Construction Program	<ul style="list-style-type: none"> Adequate fire protection equipment to be provided to prevent fires, the spread of fire, injury to personnel, and to ensure local bushfire and other fire regulations are observed. Fire extinguishers to be fitted to all vehicles and key locations at camp.
Neighbouring Property Fire Management Zone	<ul style="list-style-type: none"> Fire management planning meeting with neighbouring properties prior to commencing civil construction activities, and reviewed annually. Neighbour to advise proponent of planned burns.

Sweetpea's Exploration Program Fire Management Zones – Bushfire Management Actions	
Well Pads and Tank Pads	<ul style="list-style-type: none"> Remove all vegetation within the lease pad area and implement erosion and sediment control plan. Treat emerging vegetation with herbicide. On fire ban days or times of higher fire danger, hot works are to be conducted with increased fire protection measures and with approval from the Bushfire Officer. Open air fires cannot be lit without a permit under the Bushfire Management Act 2016.
Fire management break	<ul style="list-style-type: none"> A 10 m wide cleared perimeter around well pads and tank pads. An additional 10 m wide bare earth fire break incorporating a 4 m wide fire access trail.
Fire access trails	<ul style="list-style-type: none"> Create and maintain 4 m wide access trail by grading or spraying.
Asset Protection Zone (APZ)	<ul style="list-style-type: none"> Site Manager to assess fuel load prior to camp establishment and again at end of wet season if infrastructure is still in place. Establish a 20 m low fuel zone around well pads and lease pads. Monitor for grassy weeds and control where appropriate. If deemed necessary, conduct controlled burns where other controls are not effective and in consultation with neighbouring properties. Ensure 4 m wide fire access trail around the perimeter of the asset protection zone is trafficable by fire fighting appliances. NOTE: An additional 20 m buffer of managed vegetation may be established as an asset protection zone when the site is manned and operational. When sites are unmanned, the combined well and tank pad surface areas are sufficient buffer to meet APZ criteria, eliminating the need for an additional perimeter APZ.
Civil Construction Program	<ul style="list-style-type: none"> Adequate fire protection equipment to be provided to prevent fires, the spread of fire, injury to personnel, and to ensure local bushfire and other fire regulations are observed. Fire extinguishers to be fitted to all vehicles and key locations at camp.
Neighbouring Property Fire Management Zone	<ul style="list-style-type: none"> Fire management planning meeting with neighbouring properties prior to commencing civil construction activities, and reviewed annually. Neighbour to advise proponent of planned burns.