

Modification Application - Regulation 22

Interest Holder	Central Petroleum Limited	EMP Title	NT Drilling Campaign	Unique EMP ID No.	CTP 3-4	Mod No.	7	Date	14 July 2023
Brief Description	<p>The NT Drilling Campaign EMP was approved by the Minister on 29 November 2020. The description of activities included development of the Mamlambo crude oil exploration well for the purpose of determining the presence of an active hydrocarbon system. The proposed Mamlambo exploration well is located on Production Licence 6 (L6) within the Surprise Field.</p> <p>In relation to the Mamlambo exploration well, Central would like to modify the current proposal within the approved EMP to include an option to case and suspend the well if a productive hydrocarbon source is identified. The activity to case and suspend is currently included in the approved EMP for other exploration wells. In the event no productive hydrocarbon resources are identified, the well would be decommissioned as per the approved EMP. A drilling scenario diagram has been provided in Appendix 1 outlining the proposed actions in either event.</p> <p>To accommodate the modified proposal for a case and suspend option, Central proposes to leave the approved well head in place and include an additional string of casings down to the lower hydrocarbon producing zone(s) to ensure:</p> <ul style="list-style-type: none"> ▪ The identified surface aquifer is protected by 3 strings of casing and cement (9 5/8" Surface Casing, 7" intermediate casing and 4 1/2" production casing) and ▪ The Mereenie aquifer is protected by two strings of casing and cement (7" Intermediate Casing and 4 1/2" production casing). <p>The proposed additional casings would ensure any encountered hydrocarbons could not enter the well until perforated – which would only take place once the existing Surprise EMP was updated to include the Mamlambo well and any associated infrastructure required for its ongoing operation.</p> <p>The case and suspend option, it is also seen as a more positive outcome in terms of environmental impact as it avoids the need for decommissioning Mamlambo and future development of another well pad in the event resources are found. This may avoid additional clearing for an adjacent well pad and reduce associated environmental impacts associated with plant movements for decommissioning, remobilisation and the drilling of another well to the identified hydrocarbon source. Further, the well pad detailed in the current EMP has been sized to allow for the additional drilling resources required to carry out the case and suspend scenario and will not require any additional clearing for site access or vehicular turnarounds.</p> <p>In both scenarios, the well will be drilled in accordance with the <i>Code of Practice: Onshore Petroleum Activities in the NT (CoP)</i> and upon final decommissioning will have the following key attributes:</p> <ul style="list-style-type: none"> ▪ 2 x Cement plugs inside casing ensures aquifer protection in the unlikely event of casing corrosion. ▪ Lower hydrocarbon zones are isolated from each other by cement plugs. ▪ The well head removed. <p>Further, upon decommissioning, the case and suspended well will have the added protection of the additional casings detailed above (and Appendix 1) The diagram in Appendix 1 is to be included in the NT Drilling EMP as Figure 4-10.</p>								
Geospatial Files Included?	N/A								

Does the proposed change result in a new, or increased, potential or actual environmental impact or risk?	If a new potential or actual environmental impact or risk, is it provided for in the approved EMP?	If an increase in an existing potential or actual environmental impact or risk is it provided for in the approved 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 compliance 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?
Note 1.	N/A	Note 2.	Note 3.	Note 4.	Note 5.	Note 6.	Note 7.	Note 8.

Current EMP Text	Amended EMP Text
<p>4.4.4 Mamlambo-1 Well</p> <p>Mamlambo-1 well will then be decommissioned in accordance as per the Section 4.6.</p>	<p>4.4.4 Mamlambo-1 Well</p> <p>Mamlambo-1 well will then be either completed and suspended pending connection to the existing network or decommissioned in accordance as per the Section 4.6. If being cased and suspended, the well will consist of a Well that is fully lined with verified cement and steel casing barriers. Cased and suspended activities will include:</p> <ul style="list-style-type: none"> ▪ Installation of a production casing string ▪ Cementing the casing string in the well and validating the cement and casing. ▪ Installing an additional barrier at surface - leaving the well with a minimum of three barriers for suspension: The well will not be perforated, preventing any hydrocarbons from entering the well. ▪ The completion of the well and ongoing production will not be conducted until a new EMP is submitted and approved.
<p>4.7 Rehabilitation</p> <p>Mamlambo-1 well is an exploration well, therefore, it will be decommissioned and rehabilitated after testing is complete, under this EMP.</p>	<p>4.7 Rehabilitation</p> <p>Mamlambo-1, depending on the results of the testing, will be either cased and suspended. for future production or decommissioned in accordance as per the Section 4.6 and rehabilitated under this EMP.</p>
N/A	<p>Figure 4-10 Mamlambo Drilling Scenarios</p> <p>This Figure will be added to outline proposed case and suspend actions in the event resources are found.</p>

Note 1: No, under the case and suspend option there will be an additional barrier installed to protect the underground aquifers which should reduce the risk. Changes to diesel, water and wastewater consumption / production for the case and suspend option are negligible and any minor changes are expected to be offset by not needing to remobilise equipment and complete the decommissioning (well head removal, etc.) and the need for another production well (and associated impacts) to be drilled in the event hydrocarbon resources are found.

Note 2: Yes, all of the proposed activities are currently included as part of the approved NT Drilling Campaign (CTP3-4) EMP. Activities including civil works, and the associated controls are currently considered in the risk section of the EMP. The estimated duration of activities is expected to be similar in both the plug and abandon and the case and suspend option.

Note 3: No additional mitigation measures are considered necessary. The planned works are within the scope of the current activities and Central plans on executing the activities aligned with approved controls.

Note 4: No, the area is within a current petroleum licence with other wells which are cased and suspended. The modification will not have an impact on stakeholders.

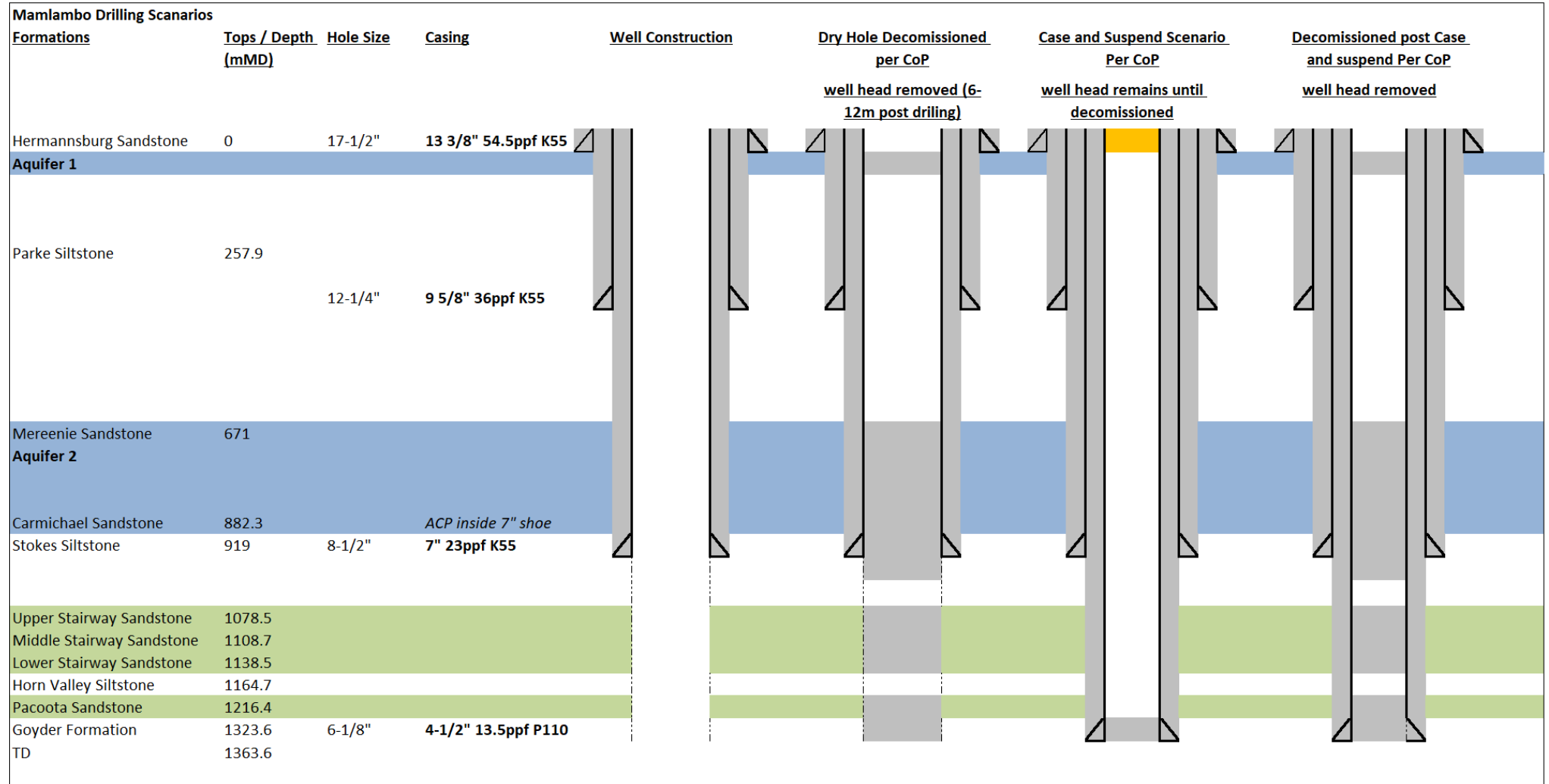
Note 5: No additional environmental performance standards and measurement criteria are required. A review of the existing standards and criteria in the EMP identified that all elements will be able to be met and the proposed works will not impact compliance.

Note 6: No, activities are aligned with the Authority Certificate from the Aboriginal Areas Protection Authority for the Mamlambo-1 well (Certificate # C2020/058).

Note 7: No, as casing and suspending is an approved activity which has been considered and included within the relevant management plans in the approved EMP it will not require updates to those plans – it will simply be an activity applied to the Mamlambo well in the event productive hydrocarbon resource(s) are identified.

Note 8: The environmental outcomes outlined in the EMP associated with all approved activities will continue to be achieved and the impacts and risks will be managed to ALARP. An assessment has been undertaken and for each key elements of the program to determine whether potential environmental risks are 'acceptable'. Central has revalidated the risk assessment in the EMP related to all approved activities and determined that there is no increased risk. Rationale to support the ALARP decision is included in the existing NT Drilling EMP (3-4).

Appendix 1



Aquifer 1	Quaternary Sediments - Surface water
Aquifer 2	Mereenie Sands
Surface barriers	2 x barriers at well head.

General Notes.

Drilling Risks
 Aquifer Protection

Remain the same in all scenario

Well Construction

All scenario

- 1) Surface aquifer is protected by 2 x strings of casing and cement (9 5/8" Surface Casing and 7" Intermediate Casing)
- 2) Mereenie aquifer is protected by 1 x string of casing (7" Intermediate Casing)
- 3) Drilled in accordance with the CoP

In success case (case and suspend)

- 1) Surface aquifer is protected by 3 x strings of casing and cement (9 5/8" Surface Casing, 7" Intermediate Casing and 4 1/2" Production Casing)
- 2) Mereenie aquifer is protected by 2 x string of casing. (7" Intermediate Casing and 4 1/2" Production Casing)

Decommissioning

In Dry Hole scenario

- 1) Surface aquifer is protected by 2 x strings of casing and cement
- 2) Mereenie aquifer is protected by 1 x string of casing and cement
- 2) Lower hydrocarbon zones are isolated from each other by cement plugs
- 3) 2 x Cement plugs in side casing ensures aquifer protection in the unlikely event of casing corrosion
- 4) Well Head removed

In success case

- 1) Surface aquifer is protected by 3 x strings of casing and cement
- 2) Mereenie aquifer is protected by 2 x string of casing and cement
- 3) Lower hydrocarbon zones are isolated from each other by cement plugs
- 4) 2 x Cement plugs in side casing ensures aquifer protection in the unlikely event of casing corrosion
- 5) Well Head removed

Case and suspend case

In success case

- 1) Surface aquifer is protected by 3 x strings of casing and cement
- 2) Mereenie aquifer is protected by 2 x string of casing and cement
- 3) Lower hydrocarbon zones are isolated from each other by validated casing and cement. They cannot enter the well bore until perforated
- 4) Well Head remains while the well remains cased and suspended - additional barriers at surface.
- 5) Multiple barriers in place to prohibit hydrocarbon migration into well bore / aquifer