



Department initiated Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L9013/2016/1
Licence Holder	Gascoyne Resources Limited
ACN	139 522 900
File Number	DER2016/002214
Premises	Dalgaranga Gold Project Mining Lease 59/749 and Miscellaneous Licence 59/151 DAGGAR HILLS WA 6638
Date of Report	4 May 2021
Proposed Decision	Revised licence granted

Alana Kidd
Manager, Resource Industries

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

The Delegated Officer has determined to make amendments to Licence L9013/2016/1. The amendment is required because of new information being made available to the Delegated Officer which supersedes previous information provided at the last Licence amendment assessment stage.

This Amendment Report documents the amendments made pursuant to section 59 and 59(B) of the *Environmental Protection Act 1986* (EP Act).

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Amendment description

This Licence amendment only relates to amending conditions relating to the trigger value and the limit set for standing water level (SWL) in groundwater monitoring bores at the Gilbeys tailings storage facility (TSF). The emissions from the Premises, the pathways for those emissions and the potential receptors have not changed since the last Licence amendment assessment in August 2020.

The department has also decided to amend the licence by making the following administrative changes:

- Removal of the construction requirements for a stage 4 embankment lift at the Gilbeys TSF as this has now been completed;
- Removal of the design and installation requirements for new groundwater monitoring bores at the TSF as these have now been installed;
- Removal of the requirement for the submission of a revised TSF seepage management plan as this has now been submitted to DWER; and
- Removal of the requirement for the submission of a groundwater monitoring construction report as this report has now been submitted to DWER.

On 5 October 2020, the Licence Holder notified the department that new groundwater data had become available and the existing Licence trigger and Limit levels set for SWL in groundwater monitoring bores at the Gilbeys Tailings Storage Facility (TSF) may no longer be appropriate.

The existing Licence was last amended on 18 August 2020 to authorise the construction of two additional embankment raises at the TSF. The department applied conditions to the Licence for the construction of the TSF lifts, requirement to design and construct additional groundwater monitoring bores at the TSF, submit a groundwater monitoring bore construction report, and submit a revised TSF Seepage Management Plan. In addition to these amendments, the department also applied trigger and limit levels for SWL measured at the existing and new groundwater monitoring bores at the TSF.

The Licence Holder has now completed construction of the first lift at the TSF and also the construction of the new groundwater monitoring bores at the TSF. The Licence Holder has submitted the Environmental Compliance Report and the groundwater monitoring bore construction report as required by the existing Licence. The Licence Holder has also submitted the revised TSF Seepage Management Plan (SMP) also a requirement of the existing Licence.

While revising the SMP and reviewing construction data from the installation of the new groundwater monitoring bores, the Licence Holder determined that the current licence trigger level of 7 mbgl and the limit of 4 mbgl for SWL at the TSF groundwater monitoring bores may not be appropriate and consequently advised the department.

The department has assessed the new information and decided to undertake a review of the trigger and limit levels set for SWL at the TSF.

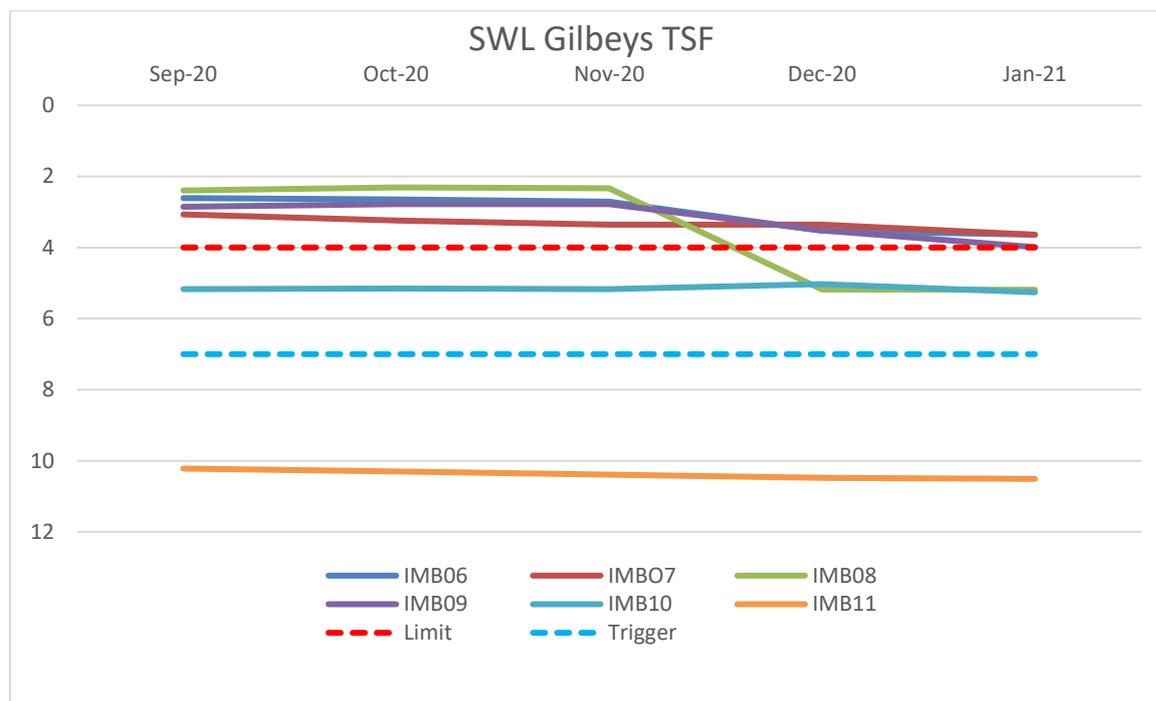
The department has determined to update the risks associated with amending the operational requirements of setting a trigger level of 7 mbgl and the limit of 4 mbgl for SWL at the TSF groundwater monitoring bores.

3. Updated risk assessment

Reducing the licence trigger level of 7 mbgl and the limit of 4 mbgl for SWL at the TSF groundwater monitoring bores could result in an increased risk to the environment.

At the time of constructing the new groundwater monitoring bores at the TSF, the Licence Holder observed groundwater levels north west of the TSF were already closer to ground level than the existing Licence limit of 'greater than 4 metres below ground level (mbgl)'. Data collected from the construction of the new groundwater monitoring bores IMB06, IMB08 and IMB09 in August 2020 (see figure 1 below), indicated at that time a SWL of 3.21, 2.83 and 3.31 metres below ground level (mbgl) respectively. These bores are located approximately 400 metres from the crest of the TSF.

Figure 1: Standing water levels September 2020 to January 2021



The Licence Holder presented information in the SMP that suggests the observed SWL in the newly constructed groundwater monitoring bores may represent the baseline groundwater levels at those locations. As a result, the SMP recommended a TSF SWL trigger level of 3.5 mbgl and a Limit of 2.5 mbgl would be more suitable in the licence.

The Licence Holder was aware at the time of reviewing the SMP, that the SWL at TSF groundwater monitoring bores IMB06, IMB08 and IMB09 (see figure 2 below) would exceed the proposed new trigger level of 3.5 mbgl, and therefore commenced operating the recently installed TSF recovery bore system (RB13 to RB16, see Figure 2) in late 2020. The results from the use of the recovery bore system are evident in Figure 1 above, whereby SWL's in

groundwater monitoring bores at the TSF are now dropping and are shown to be below the current Licence limit except for groundwater monitoring bore IMB07. Groundwater monitoring bore IMB07 is slightly above the 4 mbgl limit however this also has been trending down.

Figure 2: TSF groundwater monitoring and recovery bore network



The previous licence amendment identified that seepage from the TSF may potentially cause an increase in groundwater levels resulting in impacts to soils and native vegetation in the vicinity of the TSF. In order to manage the risks, the department decided to apply new conditions to the licence which included setting a new trigger level of 7 mbgl and a limit of 4 mbgl level for SWL at the Gilbeys TSF monitoring bores.

Since the last licence amendment, modelling presented in the revised SMP suggested the groundwater level at the TSF may rise to within 2.5 m below ground level in an arc north of the West Waste Rock Dump. The department considers 2.5 m should be maintained as a minimum depth to groundwater to protection vegetation near the TSF. The department notes there are no groundwater dependant vegetation types at the location of the TSF, however considers the risks have remained the same where impacts could occur to vegetation and soils if the groundwater level was to rise to a near surface level i.e. less than 2.5 mbgl. It is at these levels that salts in the soils could increase effecting vegetation health and disturbing ecological functions, and cause water logging at the root zone resulting in impacts to vegetation.

The department also notes there remains a low risk to groundwater users as there are still no nearby groundwater users, groundwater flow at the Premises is towards the Gilbeys pit (see Figure 2) and any impacts are expected to remain minimal and localised.

After considering the data presented and reassessing the risks associated with allowing a reduced minimum depth to groundwater at the TSF, the department now considers the current licence trigger level of 7 mbgl and a limit of 4.0 mbgl for SWL's at the TSF are no longer suitable. Therefore, with the SWL now shown to be greater than 4 mbgl at all TSF monitoring bores with the exception of IMB07 which is only slightly less than 4 mbgl and is trending down, the department considers setting a trigger level of 4 mbgl for all TSF MB's as appropriate. Any exceedance of the SWL trigger value at a TSF monitoring bore will require the Licence Holder to undertake management actions to ensure the SWL is reduced to below the trigger value. These management actions include the use of the TSF recovery bores, investigate why groundwater levels are rising at the TSF and take relevant actions to minimise the likelihood of future increases in the groundwater levels. The management actions are to commence within 30 days of the Licence Holder becoming aware that an exceedance has occurred, and the actions are to continue until groundwater levels fall below the SWL trigger value.

The current SWL Limit of 4 mbgl will also be reduced to 2.5 mbgl. The department considers 2.5 m should be maintained as a minimum depth to groundwater to protection vegetation. An existing condition of the licence requires the Licence Holder to immediately notify the department should an exceedance of any licence limit occur, and to undertake necessary actions.

4. Consultation

Table1 provides a summary of the consultation undertaken by the department.

Table1: Consultation

Consultation method	Comments received	Department response
Licence Holder was provided with draft amendment on 24 March 2021.	<ul style="list-style-type: none"> - The Licence Holder does not wish to report exceedances on a monthly basis for standing water levels at the Gilbeys TSF (Table 7 of condition 11). - WAD cyanide levels measured at the Gilbeys TSF supernatant pond continue to exceed the Licence limit of 50 mg/L. The Licence Holder is continuing to research options to reduce WAD cyanide levels in the supernatant pond and bird deterrent systems. The Licence Holder will complete an options analysis soon. 	<ul style="list-style-type: none"> - Supported. Since September 2020, monthly SWL's at the Gilbeys TSF have continued to improve each month with levels now below the trigger levels set in the Licence (DWER record DWERDT429688). The water levels at the Gilbeys TSF are expected to continue to drop as discharge to the Gilbeys TSF ceased in March 2021. The sampling frequency for SWL at the Gilbeys will be amended to quarterly. - DWER notes the continuing research into methods for reducing WAD cyanide levels at both tailings facilities and methods to deter birds. DWER also notes the latest sampling results show the WAD cyanide levels at the Gilbeys TSF are now below the Licence limit.

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 2 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 2: Summary of licence amendments

Condition no.	Proposed amendments
1	TSF stage 4 infrastructure has been deleted from table 1. This has now been completed and compliance documentation was submitted on 23 October 2020 (DWERDT354931).
Previous condition 2	This condition has been removed as the groundwater monitoring wells described in Table 2 have now been installed and the construction reports submitted on 23 October 2020 (DWERDT355008).
Previous condition 9	This condition has been removed as the revised report was submitted as required on the 26 October 2020 (A1946968).
11	Trigger and Limit levels updated for the Gilbeys TSF as described in section 3 above.
New condition 14	<p>New condition requiring the Licence Holder to undertake management actions when the trigger value for SWL is exceeded.</p> <p>These actions include:</p> <ul style="list-style-type: none"> • Use of the recovery bore system at the TSF; • Investigate the cause of the increasing groundwater levels at the TSF; and • Take relevant actions to minimise future occurrences. <p>Timeframes have also been included requiring the management actions are to:</p> <ul style="list-style-type: none"> • commence within 30 days after becoming aware there has been an exceedance; and • continue until groundwater levels are below the trigger level.
Schedule 1	Updated maps
Schedule 2	TSF raise 4 design drawings removed as this has now been completed.

References

1. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. GNT Resources Pty Ltd, *Gilbeys Tailings Storage Facility Seepage Management Plan*, Dalgaranga Gold Mine, 26 October 2020.
3. Email received 23 October 2020, Chris McQuade, Gascoyne Resources Limited, Titled: *20201023 DWER Condition 18 Monitoring Well construction*.
4. Email received 26 October 2020, Chris McQuade, Gascoyne Resources Limited, Titled: *Dalgaranga Gilbeys SWMP - Rev1*.
5. Email received 29 April 2021, Chris McQuade, Gascoyne Resources Limited, Titled: *GNT Dalgaranga Update*.
6. Email received 29 March 2021, Chris McQuade, Gascoyne Resources Limited, Titled: *Dalgaranga Quarterly TSF SWL Dec 2020 to Feb 2021 – L9013/2016/1*.
7. Email received 2 April 2021, David Baumgartel, Gascoyne Resources Limited, Titled: *WAD CN update for Prescribed Premises Licence L9013/2016/1*.