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Resources
Regulator**

COMPLIANCE AUDIT PROGRAM

WOODLAWN MINE

Tarago Operations Pty Ltd



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1. Introduction

1.1. Background

Special (Crown & Private Lands) Lease No. 20 [S(C&PL)L20] was granted to Denehurst Limited on 16 November 1973. It was mined as both an open pit and underground operation producing zinc, copper and lead concentrates and included a tailings retreatment operation for several years. The mine was closed in March 1998 due to prevailing low metal prices. Denehurst went into administration in June 2003 and was deregistered in August 2008.

Before deregistration, Denehurst supported the transfer of the title to Tarago Operations Limited and a transfer application was lodged in December 2008, but was not approved until February 2014. The transfer was registered in May 2014.

Since the transfer, Tarago Operations has gained development consent for redeveloping underground mining on the site and reprocessing existing tailings on the site. Construction started in 2017 and was substantially completed by October 2019. Retreatment of tailings had commenced, and the box cut and underground portal had been constructed.

In November 2000, Collex Pty Ltd obtained development consent to operate a waste bioreactor on the old Woodlawn Mine site using the open cut void. The waste facility was within S(C&PL)L20 and is now operated by Veolia Energy Services Australia Pty Ltd.

A part cancellation application was also lodged in December 2008 to excise the area of Veolia's operation. However, the application was not accepted by the Department of Resources and Geoscience and no other part cancellation applications were received. The waste facility remains within S(C&PL)L20.

As part of the compliance audit program undertaken by the Regulator, an audit of the mining operations associated with the Woodlawn Mine was undertaken on 7 November 2019.

1.2. Audit objectives

The objectives of the audit were to:

- undertake a compliance audit of the Woodlawn Mine, operated by Tarago Operations Pty Ltd, against the requirements of the *Mining Act 1992* and the conditions of the mining lease issued pursuant to that Act

- assess the operational performance of the mining operations and the ability of the titleholder and/or operator to implement management systems and controls to provide for sustainable management of the operations.

1.3. Audit scope

The scope of the audit included:

- The mining and rehabilitation activities associated with the Woodlawn Mine including:
 - tailings storage facilities TDN, TDS, TDW and TSF4
 - waste rock emplacements – including the rehabilitated waste rock emplacement
 - Woodlawn Underground project – temporary rehabilitation associated with construction activities.
- a review of documents and records pertaining to the mining and rehabilitation activities
- the assessment of compliance for the period commencing 1 November 2018 and ending 1 November 2019.

1.4. Audit criteria

The audit criteria against which compliance was assessed included:

- *Mining Act 1992*, specifically, Sections 5, 6, 65, 140, 163C to 163E, 163G, 378D
- Mining Regulation 2016, specifically clauses 59 to 68
- conditions attached to S(C&PL)L20 granted 16 November 1973 and last renewed 18 February 2015
- commitments made in Woodlawn Mine SML20¹ Mine Operations Plan, prepared by Heron Resources Ltd, dated 15 September 2015
- commitments made in Woodlawn Mine SML20 Waste Rock Management Plan, prepared by Heron Resources Pty Ltd, Revision 3 dated 16 July 2018.

¹ Tarago Operations Pty Ltd refers to S(C&PL)L20 as SML20

1.5. Publishing and disclosure of information

This audit report will be published on the NSW Resources Regulator's website consistent with Section 365 of the *Mining Act 1992*.

This audit report may be publicly disclosed consistent with the *Government Information (Public Access) Act 2009*.

2. Audit methods

The audit process involved interviewing site personnel, a review of documentation and samples of records provided by the titleholder and/or operator and a site inspection of the operations to determine the level of compliance of the operations and assess the status of the operational performance. The audit process and methodology are described in more detail in the sections below.

2.1. Opening meeting

The opening meeting was held onsite at the Woodlawn Mine office on 7 November 2019. The audit team was introduced and the scope of their responsibilities was conveyed to the auditees. The objectives and scope of the audit were outlined. The methods to be used by the team to conduct the audit were explained, including interview of personnel, review of documentation, examination of records and a site inspection to assess specific compliance requirements.

2.2. Site interviews and inspections

2.2.1. Data collection and verification

Where possible, documents and data collected during the audit process were reviewed on site. All information obtained during the audit process was verified by the audit team, where possible. For example, statements made by site personnel were verified by viewing documentation and/or site inspections, where possible. Where suitable verification could not be provided, this has been identified in the audit findings as not determined.

2.2.2. Site inspections

A site inspection was undertaken of the following areas:

- arboreal screen along Collector Road
- Tailings Dams North, South and West, including hydro-mining operation at TD South
- tailings storage facility TSF4
- ROM pad and new waste rock emplacement
- rehabilitated waste rock emplacement, including water management dam
- construction areas around processing plant
- biodiversity offset area.

2.3. Closing meeting

The closing meeting was held onsite at the Woodlawn Mine office on 7 November 2019. The objectives of this meeting were to discuss any outstanding matters, present preliminary findings and outline the process for finalising the audit report.

2.4. Compliance assessment definitions

The reporting of results from the compliance audit was determined based on the definitions presented below in Table 1.

Table 1 Audit assessment categories

ASSESSMENT	CRITERIA
Compliance	Sufficient and appropriate evidence is available to demonstrate that the particular requirement has been complied with.
Non-compliance	Clear evidence has been collected to demonstrate that the particular requirement has not been complied with. There are three subcategories of non-compliance reflecting the severity and level of risk associated with the non-compliance: NC1 – the absence of planning or implementation of a required operational element which has the potential to result in a significant risk

ASSESSMENT	CRITERIA
	<p>NC2 – an isolated lapse or absence of control in the implementation of an operational element which is unlikely to result in a significant risk</p> <p>NC3 – an administrative or reporting non-compliance which does not have a direct environmental or safety significance</p> <p>Note: The identification of a non-compliance in this audit may or may not constitute a breach of, or offence under, the Mining Act 1992. Non-compliances identified in this audit report may be further investigated by the NSW Resources Regulator and regulatory actions may be undertaken.</p>
Observation of concern	<p>Where an auditee may be compliant at the time of the audit but there are issues that exist that could result in the potential for future non-compliance if not addressed.</p> <p>Observation of concern was also used where an issue may not have particular compliance requirements, but which was not conducive to good management or best practice.</p>
Suggestion for improvement	<p>Where changes in processes or activities inspected or evaluated at the time of the audit could deliver improvement in relation to risk minimisation, sustainable outcomes and management practices.</p>
Not determined	<p>The necessary evidence has not been collected to enable an assessment of compliance to be made within the scope of the audit.</p> <p>Reasons why the audit team could not collect the required information include:</p> <ul style="list-style-type: none"> ■ insufficient information on the file relating to the period covered by the audit or insufficient evidence collected to reach a conclusion ■ the wording on the criteria (approval condition) meant that no evidence could be gathered, or it was too difficult to gather the evidence. <p>A ‘not determined’ assessment was also made where the condition was outside the scope of the audit.</p>
Not applicable	<p>The circumstances of the authorisation or title holder have changed and are no longer relevant, e.g. no longer mining, mining equipment and plant has been removed, etc.</p>

ASSESSMENT	CRITERIA
	An invoking element in the criteria was not activated within the scope of the audit.

2.5. Reporting

Following completion of the site audit, the audit checklists were completed and audit notes were reviewed to compile a list of outstanding matters to be noted in the audit report. This report was prepared to provide an overview of the operational performance of the site in relation to the mining operations and identify any non-compliances or observations of concern noted by the auditors during the site inspections and interviews.

The draft audit findings were forwarded to Tarago Operations for comment. Consideration was given to the representations made during the finalisation of the audit report as discussed in the audit findings.

3. Audit findings

3.1. Mining operations plan

A mining operations plan (MOP) was required for the mining operation in accordance with condition 3 of S(C&PL)L20. The MOP was required to be submitted and approved before starting any significant surface disturbing activities.

Tarago Operations prepared a MOP for the Woodlawn Mine - Heron Resources Ltd, Woodlawn Mine SML20 mine operations plan dated 15 September 2015 (INW15/46417/DOI) – which was approved by the Regulator (then the Department of Industry - Resources and Energy) on 11 November 2015 (OUT15/31494/DOI).

During the audit, there were some inconsistencies identified between operations on site and the operations described in the approved MOP. For example, the location of the waste rock dump was moved from the approved location. The decision to move the waste rock dump was made with good environmental intentions but approval for the modification of the approved MOP was not sought from the Regulator before relocating it. The approved location was an existing vegetated area and rather than remove the vegetation, the dump was moved to a cleared location a short distance away. This issue was raised as **non-compliance no. 1** and is ranked NC2. The waste rock dump location was also a breach of the development consent granted pursuant to the *Environmental Planning & Assessment Act 1979*. Department of Planning, Industry and Environment Compliance (DPIE Planning Compliance) is working with Woodlawn to resolve this issue.

It was also noted that Woodlawn was starting a tailings capping trial using processed pulp material which was being stockpiled in the capping trial at TD North. This capping trial was included in the approved MOP. The stockpiling and use of this pulp material was not specified in the MOP but was generally consistent with the description of the capping trial. As a result, this was not considered to be a breach of the MOP and no further action is warranted.

Section 2.3.5 of the MOP relating to the rehabilitated waste rock dump (WRD) stated that *'Monitoring and assessment of the vegetation is planned as part of the ongoing rehabilitation monitoring program.'* Landscape function analysis (LFA) baseline monitoring was completed in October 2018. Although discussion with Woodlawn staff indicated that LFA was planned to be undertaken on a quarterly basis, this had not commenced (but was not a MOP commitment). This was raised as **observation of concern no. 1**.

During the site inspection, it was noted that there were areas of active erosion and vegetation failure on parts of the WRD, particularly the western face (Figure 1). Section 5.1.1 of the approved MOP identified

that Tarago Operations would monitor erosion and vegetation on the surface of the waste rock dump and undertake maintenance as required to ensure that the vegetation cover was maintained. It was observed that Tarago Operations had dumped additional soil material to be respread over the failed eroding areas. However, the Regulator's auditor identified a concern that the slope was too steep and may require additional stabilisation (e.g. jute mesh, bitumen emulsion or similar) until vegetation could be established. Otherwise, the newly placed soil could wash off at the first rain event. This was raised as **observation of concern no. 2**.

Figure 1 Vegetation failure and erosion on the western face of the waste rock emplacement



Section 6 of the MOP outlined the performance indicators and completion criteria for various mine phases and domains. In the construction phase, the completion criteria for Tailings Storage Facility 4 was a lining to achieve 1×10^{-9} m/s to a depth of at least 900 millimetres of clay or equivalent. Permeability test results (Douglas Partners) were provided as evidence to demonstrate that the required permeability was achieved. The average of the testing was 6×10^{-10} m/s which was in excess of the required criteria.

For the phase of 'Rehabilitation of other domain areas', the completion criteria for the waste rock dump was '*water quality contained in dam suitable for discharge or recycling*'. Water quality in the waste rock dump dam (Figure 2) had been monitored over a 15 to 20-year period and records were available to verify this. However, waterflow from the waste rock dump had not been routinely monitored. Tarago Operations had recently installed monitoring equipment so that flows from the waste rock dump were now being measured. Collection of the flow monitoring data was necessary for the design of a passive treatment system for the poor quality seepage from the waste rock dump.

Figure 2 Waste rock emplacement seepage dam



The MOP referenced the *Waste rock management plan* for the management of potential acid forming wastes (PAF). During the audit, Tarago Operations advised that 11 samples had been sent to ALS Brisbane for analysis and provided laboratory results to indicate that PAF material had been detected underground. The characterisation of waste rock at the surface in the new waste rock dump showed that material was non-acid forming (NAF). NAF material was being stockpiled at Veolia's operations. Tarago Operations advised that the PAF material was being stockpiled above TSF4, with all drainage from that area reporting to TSF4. The storage of PAF in this location was not described in the approved MOP. Despite the MOP indicating that there was likely to be more NAF than PAF, recent analyses indicated the opposite appeared to be the case. There may be a need for the Tarago Operations to revise both the MOP and the waste rock management plan to provide for alternate options for the management of PAF material. This is raised as **observation of concern no. 3**.

3.2. Rehabilitation

A basic rehabilitation risk assessment was conducted as part of the MOP. Key risk issues identified included potential for contamination, vegetation failure, grazing pressure and feral animals. Risk controls were identified for key risks and generally, evidence was available to confirm these controls have been implemented, although there were areas where these controls failed.

Section 2.4.9 of the approved MOP stated '*At present the only area that rehabilitation is considered complete, although still subject to ongoing maintenance, is the main Rehabilitated Waste Rock Dump.*

This emplacement was previously rehabilitated and although has withstood past droughts and is considered self-sustaining, it has not been subject to specific rehabilitation monitoring and assessment work. During the site inspection, it was observed that there was a failure of vegetation establishment on some parts of the waste rock emplacement, and there were areas of active erosion, particularly on the western face. As discussed in Section 3.1, Tarago Operations had initiated maintenance work on this area that included respreading soil on the eroded areas.

Section 5.1.2 broadly discussed the rehabilitation program for Domain 2 Tailings storage facilities. This described two options for capping and rehabilitation of the tailings dams. During the audit, Tarago Operations advised that a capping trial using Option 1 was about to begin on a five-hectare area of Tailings Dam North (Figure 3). The trial was planned to be conducted over five years, and the results would be used to refine the capping design for use in rehabilitation of the other TSFs on site. The trial was proposing to use the processed pulp material as one of the neutralising layers for the acidic nature of the tailings (Figure 4).

Figure 3 Area of capping trial on TD North



Figure 4 Processed pulp material at TD North



Section 5.1.4 broadly discussed the rehabilitation program for Domain 4 - New Infrastructure (Hickory's Paddock). This section stated *'Areas of Hickory's Paddock remaining outside of the proposed processing facility and associated infrastructure will be progressively rehabilitated as necessary'*. The MOP indicated that this work would be done shortly after construction was completed and within the first two years of the MOP period (which ended in August 2017). Section 4.2 of the 2018-2019 Annual Review indicated that construction was completed during that reporting period. The area was inspected as part of the audit site inspection. Tarago Operations staff advised that cropping was undertaken on the Hickory's Paddock area in 2018 and 2019 to develop organic matter in the soil and to provide temporary

vegetation cover. There was limited vegetative cover at the time of the inspection. Although progress has been made in shaping, topsoiling and developing a growth medium, rehabilitation of this area was behind the MOP schedule, but on track in relation to the completion of construction. This is raised as **observation of concern no. 4**.

Section 5.1.5 of the approved MOP described the proposed rehabilitation for Domain 5 - Remaining Site Areas. During the site inspection, the tree screen area along Collector Road was inspected (figure 5). This area was noted to be included in the biodiversity offset area proposed as part of the project development consent. Tree development was observed to be quite successful, with monitoring data detailing survivability rates of about 80% (figure 6). Tarago Operations advised that the tree screen area was being used as a pilot study to assess controls aimed at increasing the survival ability of the vegetation in this area. Detailed records of the species planted, ameliorants added, when trees were watered and assessments of the health and growth of each species, have been maintained. A photographic record was also reported to have been maintained.

Figure 5 Tree screen area along Collector Road



Figure 6 Example of tree survival in the tree screen



The remainder of the biodiversity offset area was observed to be left as is, generally not disturbed by mining activities (figure 7). The area had been subject to ongoing grazing but did not appear to be degrading at the time of the inspection. Tarago Operations reported that seed collection was proposed from the treed area on the ridgeline with these species used to revegetate similar areas in the biodiversity offset area.

Figure 7 Biodiversity offset area



3.3. Reporting

3.3.1. Annual rehabilitation reporting

Condition 3(f) of the mining lease requires the submission of an annual rehabilitation report that provides a detailed review of the progress of rehabilitation against the performance measures and criteria established in the MOP. Annual rehabilitation reports were noted to have been provided for the past two years as part of the annual review as follows:

- Woodlawn Mine SML20 Annual Review July 2018 to June 2019
- Woodlawn Mine SML20 Annual Review July 2017 to June 2018

Given the construction phase taking place over the past two years, there has not been much opportunity for rehabilitation to progress. However, it was noted that the 2018-2019 report discussed the rehabilitation pot trial using mixed waste organic output (MWO) and also the preparation for the capping trial on TD North. The pot trials using MWO were observed in the environmental greenhouse during the site inspection.

3.3.2. Annual exploration reporting

Section 163C of the Mining Act and clause 59 of the Mining Regulation require the preparation and submission of an annual report that provides full particulars of all exploration and other operations or activities conducted during the 12-month period. Tarago submitted the following reports during the audit scope period:

- Annual report Woodlawn Mine Zinc/Copper Project S(C&PL)L20 16 November 2017 to 15 November 2018
- Annual report Woodlawn Mine Zinc/Copper Project S(C&PL)L20 16 November 2016 to 15 November 2017

Both reports were prepared in accordance with the relevant guidelines and provide information on the production and exploration activities during the reporting period and an outline of proposed exploration activities for the next reporting period. The reports were accepted by the Division of Resources and Geoscience (DRG) as satisfactory.

3.3.3. Compliance and environmental incident reporting

Condition 4 of S(C&PL)L20 requires Tarago Operations to provide a notification of any breaches of the conditions of the lease, or breaches of the Mining Act or Regulations.

Operations not in accordance with the approved MOP were identified during the audit (for example, the waste rock dump being in a different location). There was no evidence found in the Regulator's records to indicate that this MOP breach had been notified. Tarago Operations provided evidence that a letter had been sent to the Department of Planning, Industry and Environment's Planning Compliance regarding the waste rock emplacement (that is also outside the development consent area) earlier in 2019. However, there was no evidence that this letter was also sent to the Resources Regulator as a breach of the conditions of the mining lease. This issue is raised as **observation of concern no. 5**. Planning Compliance was working with Tarago Operations to resolve the development consent issues. A MOP variation will be required to be submitted to the Regulator to address the MOP breaches.

S(C&PL)L20 also includes condition 5 that requires the lease holder to provide environmental incident notifications and reports to the Regulator no later than seven days after those incident notifications and reports are sent to the relevant authorities under the *Protection of the Environment Operations Act 1997*.

During interviews with Tarago Operations staff, it was noted that informal systems exist for the identification and reporting of environmental incidents, generally through routine inspections or the review of monitoring data. Evidence was available to demonstrate that environmental incidents have

been reported to the Regulator as required by Condition 5 of the mining lease. For example, recent dust exceedance notification (MAAG0005001), where dust levels exceeded TARP triggers. As a result of the exceedance, Tarago Operations reviewed its dust control strategies and began a trial using molasses mixed with water for dust suppression.

3.4. Other mining lease compliance requirements

3.4.1. Notice to landholders

Condition 1 of the mining lease requires the lease holder to provide a notice in writing to each landholder within the lease area advising that the lease has been granted or renewed. Mining lease S(C&PL)L20 was last renewed in 2015, outside of audit scope period, therefore the notification requirements were not verified during the audit.

3.4.2. Co-operation agreement

Condition 8 of S(C&PL)L20 requires the lease holder to make reasonable attempts to enter into a co-operation agreement with the holders of any overlapping titles. Although there are no overlapping titles with S(C&PL)L20, Tarago Operations has entered into a co-operation agreement with Veolia who operate a putrescible waste facility and bioreactor within the former open cut void. The deed of agreement was reviewed during the audit and was noted to set out the responsibilities of each party, including the responsibility for rehabilitation of the site.

3.4.3. Prescribed dam

Condition 9 of S(C&PL)L20 included a condition requiring approval for any mining within the Woodlawn notification area, which surrounds the Woodlawn Mine evaporation dams and the Woodlawn Mine tailings dams, which are prescribed dams under the *Dams Safety Act 1978*. The Regulator's records confirm that Woodlawn gave notification via a letter dated 23 November 2016 of its intention to mine within the prescribed dam notification area (INW16/63320/DOI). Approval was granted in September 2017 (OUT17/37707/DOI), before the reprocessing of the tailings material.

3.5. Tailings management

There were four tailings storage facilities in operation at the Woodlawn Mine. Tailings Dams North, South (figure 8) and West (figure 9) were existing facilities from the previous mining operations at Woodlawn. Tailings material in these facilities is planned to be reprocessed, and this reprocessing had started with Tailings Dam South.

To facilitate the reprocessing activities, tailings storage facility TSF4 was constructed in 2018 (Figure 10). Engineering consultant Coffey International prepared the Woodlawn Project – Tarago Construction Report TSF4 in September 2018 at the completion of construction to confirm that the TSF was constructed according to the design.

A characterisation of the tailings material resulted in a clay barrier being included in the design with this barrier required to have a permeability of 1×10^{-9} m/s to a depth of at least 900 millimetres of clay or equivalent. Test results from a NATA certified laboratory (Douglas Partners), provided in an appendix to the construction report, confirmed that the required permeability had been achieved, with the average of the testing being 6×10^{-10} m/s, which was in excess of the required criteria.

It was noted that the design also included specifications for a filter blanket and seepage collection system, both of which were confirmed to have been installed in the construction report provided by Coffey. An operations and maintenance manual had been prepared for TSF4, however, verification of the implementation of the manual was beyond the scope of the audit. It was noted that the TSF surface is surveyed monthly, and insitu testing of the consolidation and strength profile of the tailings was reported to be planned before the construction of the next raise of the facility, which was scheduled for 2020.

The monitoring program for the TSFs included groundwater monitoring using a network of piezometers. Tarago Operations reported that quotes had been obtained for the installation of additional piezometers downstream of TSF4. Data provided in the annual review indicated that no significant issues were identified to-date from this monitoring. There is a known seepage issue from Tailings Dam South. However, this seepage issue was planned to be addressed once tailings reprocessing in TD South has been completed, and before depositing further tailings. The seepage area was inspected during the audit (Figure 11) and salt formation was observed over a small area (Figure 12). No additional issues were identified.

Figure 8 Tailings Dam South - reprocessing in progress



Figure 9 View over TD West

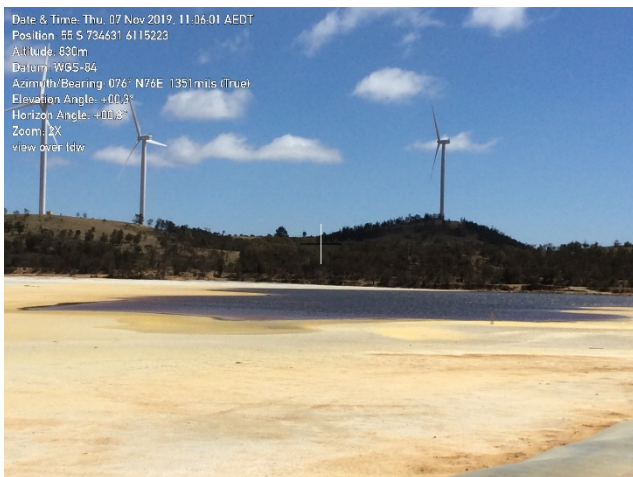


Figure 10 View over TSF4



Figure 11 Seepage collection dam below TD South



Figure 12 Salt formation in seepage area



4. Compliance management

4.1. Identifying compliance obligations

As part of preparation for the audit, Tarago Operations' Environmental Manager developed a set of spreadsheets outlining the commitments from each of the MOP and management plans, and associated actions and evidence. This was a good start to the development of a more formal compliance management system, which is raised as **suggestion for improvement no. 1**.

4.2. Inspections, monitoring and evaluation

It was noted that the monitoring requirements for the site have been collated into a monitoring plan (Woodlawn mine site: environmental monitoring plan, January 2019). Inspections and/or monitoring is undertaken weekly, monthly and quarterly depending on the parameters being inspected and/or monitored. Generally, evidence was available to demonstrate that monitoring data was recorded and inspections were documented using inspection checklists.

Where issues of concern are raised during inspections, there is no formal mechanism for recording, assigning actions and following up where corrective actions are required. Tarago Operations does use the MYOSH software for WHS issues and there may be scope for this to be extended to cover environmental issues identified during inspections. Without a recording and tracking system, it is possible for issues to be missed. This issue is raised as **suggestion for improvement no. 2**.

4.3. Record keeping

Sections 163D and 163E of the Mining Act relate to the creation and maintenance of records required under the Act, the Regulation, or a condition of title. Records must be kept in a legible form for production to any inspector and must be maintained for a period of four years after the expiry or cancellation of the title.

Generally, records were available to demonstrate compliance and the implementation of the monitoring and inspection program. Suggestions for improvement identified in Section 4.1 and 4.2 of this report would add further value to the record keeping and documentary evidence processes.

4.4. Titleholder response to draft audit findings

Tarago Operations was provided with a copy of the draft audit report and invited to submit a response to the draft audit findings. A copy of the response is provided in Appendix 1.

Tarago Operations did not dispute any of the audit findings, providing information on corrective actions to address the issues raised. Generally, the corrective actions proposed were considered suitable to address the issues. The development of a more robust compliance monitoring and tracking system as proposed will assist Tarago Operations to take a more pro-active approach to compliance management.

Implementation of the corrective actions will be monitored by the Regulator during future inspections.

5. Audit conclusions

From the evidence reviewed during the audit and observations made on site during the audit site inspections, it was concluded that Tarago Operations Pty Ltd has achieved a moderate level of compliance with the requirements of the mining lease and MOP in relation to mining operations undertaken at the Woodlawn Mine.

Woodlawn has developed some rudimentary systems for compliance management, but further development of these systems would be beneficial to promote a more active approach to compliance management on site.

One non-compliance ranked NC2, five observations of concern and two suggestions for improvement were noted by the auditor as summarised in Table 2, Table 3 and Table 4. Regulatory actions may be undertaken in relation to the non-compliances and observations of concern identified during the audit.

Table 2 Summary of non-compliances

NON-COMPLIANCE NO.	DESCRIPTION OF ISSUE	RECOMMENDATION
1	During the audit, there were some inconsistencies identified between operations on site and the operations described in the approved MOP. For example, the location of the waste rock dump was moved from the approved location. The approved location was an existing vegetated area and rather than remove the vegetation, the dump was moved to an already cleared location a short distance away.	As this non-compliance is also a breach of the development consent, the Department of Planning, Industry and Environment will take the lead.

Table 3 Summary of observations of concern

OBSERVATION OF CONCERN NO.	DESCRIPTION OF ISSUE	RECOMMENDATION
1	Section 2.3.5 of the MOP relating to the rehabilitated waste rock dump (WRD) stated that <i>'Monitoring and assessment of the vegetation is planned as part of the ongoing</i>	Tarago Operations should schedule and undertake LFA on a regular

OBSERVATION OF CONCERN NO.	DESCRIPTION OF ISSUE	RECOMMENDATION
	<p><i>rehabilitation monitoring program.</i> Landscape function analysis (LFA) baseline monitoring was completed in October 2018. Although discussion with Woodlawn staff indicated that LFA was planned to be undertaken on a quarterly basis, this had not yet commenced (but was not a MOP commitment).</p>	<p>basis to monitor rehabilitation progress.</p>
<p>2</p>	<p>During the site inspection, it was noted that there were areas of active erosion and vegetation failure on parts of the WRD, particularly the western face. Section 5.1.1 of the approved MOP identified that Tarago Operations would monitor erosion and vegetation on the surface of the waste rock dump and undertake maintenance as required to ensure that the vegetation cover is maintained. It was observed that Tarago Operations had dumped additional soil material to be respread over the failed eroding areas. However, the Regulator’s auditor identified a concern that the slope was too steep and may require additional stabilisation (e.g. jute mesh, bitumen emulsion or similar) until vegetation can be established, otherwise, the newly placed soil could wash off at the first rain event.</p>	<p>Tarago Operations should consider additional stabilisation on the western slope of the waste rock emplacement.</p>

OBSERVATION OF CONCERN NO.	DESCRIPTION OF ISSUE	RECOMMENDATION
3	<p>Tarago Operations advised that the PAF material was being stockpiled above TSF4 with all drainage from that area reporting to TSF4. The storage of PAF in this location was not described in the approved MOP. Despite the MOP indicating that there was likely to be more NAF than PAF, recent analyses indicated the opposite appeared to be the case and there may be a need for Tarago Operations to revise both the MOP and the waste rock management plan to provide for alternate options for the management of PAF material.</p>	<p>Tarago Operations should review both the MOP and the waste rock management plan to provide for alternate options for the management of PAF material.</p>
4	<p>Section 5.1.4 broadly discussed the rehabilitation program for Domain 4 - New Infrastructure (Hickory's Paddock). The MOP indicated that this work would be done shortly after construction was completed and within the first two years of the MOP period (which ended in August 2017). Section 4.2 of the 2018-2019 annual review indicated that construction was completed during that reporting period. The area was inspected as part of the audit site inspection. Tarago Operations staff advised that cropping was undertaken on the Hickory's Paddock area in the last two years (2018 and 2019) to develop organic matter in the soil and to provide temporary vegetation cover. There was limited vegetative cover at the time of the inspection. Although progress has been made in shaping, top soiling and developing a growth medium, rehabilitation of this area was behind the MOP schedule, but on track in relation to the completion of construction.</p>	<p>Tarago Operations should continue to implement and monitor the rehabilitation strategy for Hickory's Paddock.</p>
5	<p>Operations not in accordance with the approved MOP were identified during the audit - for example, the waste rock dump</p>	<p>Tarago Operations should ensure that notifications for any breaches of the mining lease conditions are</p>

OBSERVATION OF CONCERN NO.	DESCRIPTION OF ISSUE	RECOMMENDATION
	being in a different location. There was no evidence found in the Regulator’s records to indicate that this MOP breach had been notified to the Regulator. Tarago Operations provided evidence that a letter had been sent to the Department of Planning, Industry and Environment regarding the waste rock emplacement (which is also outside the development consent area) earlier in 2019, however there was no evidence that this letter was also sent to the Regulator.	reported to the Regulator as required by Condition 4.

Table 4 Summary of suggestions for improvement

SUGGESTIONS FOR IMPROVEMENT	DESCRIPTION OF ISSUE
1	As part of preparation for the audit, the Tarago Operations’ Environmental Manager had developed a set of spreadsheets outlining the commitments from each of the MOP and management plans, and associated actions and evidence. This was a good start to the development of a more formal compliance management system and further development of this would be beneficial.
2	Where issues of concern are raised during inspections, there is no formal mechanism for recording, assigning actions and following up where corrective actions are required. Tarago Operations does use the MYOSH software for WHS issues and there may be scope for this to be extended to cover environmental issues identified during inspections. Without a recording and tracking system, it is possible for issues to be missed.



20 December 2019

Jennifer Ehmsen

Principal Compliance Auditor
Compliance Coordination / Resources Regulator
Department of Planning, Industry and Environment

Dear Jennifer,

GENERAL COMPLIANCE AUDIT – WOODLAWN MINE

I refer to your email dated 10 December 2019 in which you provided a draft compliance audit report outlining the findings of the Environmental Audit conducted on 7 November 2019.

We have reviewed the draft report and provide the following responses for your consideration.

- 1. Non-compliance no.1. Relocation of waste rock emplacement.** The Environmental Assessment of the TriAusMin Woodlawn Project conducted by Parsons Brinckerhoff in 2012 first proposed that a 7ha waste rock emplacement be located to the west of the tailings dam road. The proposed area was approved in Project Approval 07_0143. During construction of the new Tailings Storage Facility 4 (TSF4) an area southeast of the main haul road and north-west of TSF4 was disturbed and programmed for rehabilitation on completion of construction. The disturbed site was approximately 3ha in size and was determined to be suitable for the storage of high grade waste rock brought to the surface. The material was initially considered to be suitable for future expansion of the TSF4 facility and therefore needed to be stored in a location separate from the stored PAF material. It has since been observed that some PAF material is present. Nevertheless, the emplacement of the material next to TSF4 is still considered to be the most suitable option.

The approved Waste Rock dump location is presently vegetated with well-established trees that would need to be removed should the full extent of the approved waste rock dump be commissioned. It was considered that utilizing the already highly disturbed area as an alternate storage location for the high value waste rock material would provide environmental benefit as the vegetation would not need to be removed. Additionally, the emplacement of the material, immediately adjacent to the TSF4 wall provides future economic and practical benefits for the stage 2 development of TSF4.

Heron forecast the need to modify the Project Approval for the relocation of the Waste Rock Emplacement in the 2018-2019 Annual Report dated 31 August 2019 and as recorded at that time was preparing to lodge the third modification.

MOD 3 to PA07_0143 which includes an approval request to utilize the new waste rock emplacement location, was first lodged with the department on 27 September 2019. Heron is presently in discussions with the Department of Planning, Industry and Environment Compliance, with regard to this matter.

2. **Observation of Concern no. 1. Monitoring and assessment of vegetation.** Section 2.3.5 of the MOP forecasts the requirement to undertaken ongoing monitoring of the Rehabilitated Waste Rock Dump. Section 8 specifies that the monitoring method to be used will be Landscape Function Analysis (LFA). Baseline LFA analysis was completed in October 2018. The Woodlawn Mine Environmental Monitoring Plan will be revised to include a program of periodic LFA monitoring of the rehabilitated WRD and all other areas programmed for rehabilitation. The periodic monitoring program will commence in Quarter 3, 2019/2020.
3. **Observation of Concern no. 2. Erosion and vegetation failure on the rehabilitated waste rock dump.** Erosion across the rehabilitated waste rock dump is in need of stabilisation and rehabilitation. Initially, it was anticipated that Mixed Waste Organic Output (MWOO) material produced on site by Veolia would be used for the erosion rehabilitation. However, in view of the removal by the EPA of the Exemption allowing use of MWOO, other material for the rehabilitation of the WRD will be required. A stockpile of topsoil has been placed adjacent to the erosion in preparation for the rehabilitation activities. The suggestion from the Auditors that additional measures, including jute mesh or other materials will be required to stabilize the erosion on the steep western slopes is agreed and a range of appropriate materials and strategies will be utilised. A works program to commence rehabilitation of the erosion on the rehabilitated WRD will be initiated during Quarter 3, 2019/2020.
4. **Observation of Concern no. 3. Revised management of NAF and PAF material.** The Auditors have raised the requirement for Heron to update the MOP to take account of recent classification of waste rock as PAF and its management. Heron is presently updating the Waste Rock Management Plan, and will update the MOP during Quarter 3 of 2019/2020.
5. **Observation of Concern no. 4. Rehabilitation of Domain 4 - Hickory's Paddock.** During the site inspection the auditors were shown an area below TSF4 that was in the process of being rehabilitated following construction of TSF4. Rehabilitation of the site is relatively advanced having first been sown with millet in December 2018 (Figure 1). Millet, was used as the initial vegetation cover as it is a summer crop useful for reducing erosion, improving water infiltration and soil nutrient cycling. The high above ground biomass grown desiccated over winter and contributed organic matter to the soil. A second crop comprising brassica and millet was sown, using a direct drilling technique, on the day prior to the Audit inspection (6 November 2019), explaining the limited vegetation observed on the ground during the inspection. There has been no rainfall recorded on site since the crop was sown, consequently there has been negligible germination of the crop to date. Presently, it is planned that a permanent pasture be sown during Autumn 2020 as the definitive understory ground cover. However, should the extreme drought conditions persist it may be necessary to revise the schedule. LFA will be used to monitor the rehabilitation within Hickory's Paddock.



Figure 1. Overview of Hickorys Paddock rehabilitation, millet crop (March 2019)

6. **Observation of Concern no. 5. Compliance and environmental incident reporting.** As a

requirement of condition 4 of S(C&PL)L20 Tarago Operations are required to notify the Department of any breaches of the conditions of the lease or breaches of the Mining Act or Regulations. As noted in the Audit Report Heron is presently in consultation with the Regulator to resolve this issue. As forecast in "*observation of concern no.4*" above, Heron will undertake a revision of the MOP to address the alleged breaches during Quarter 3 of 2019/2020. Additionally, following development of a formal compliance management system and utilisation of MYOSH software (see response to suggestion for improvement no.1 and no. 2 below), the present system of identifying and reporting environmental incidents to the Regulator will become more robust.

7. **Suggestion for Improvement no. 1. Development of a formal compliance management system.** The spreadsheets developed for the Audit will be utilised as the foundation of a working compliance monitoring system. The preparatory work undertaken for the audit will be integrated into an environmental monitoring system utilising the framework outlined in AS/NZS ISO 14001:2016.
8. **Suggestion for Improvement no. 2. Utilisation of MYOSH software to record and assign actions for environmental issues.** Following discussions during the Audit, Environmental staff have commenced utilising MYOSH for the purpose of assigning responsibility and following up actions. The requirement to utilise MYOSH for this purpose will be documented in a revision of the Environmental Monitoring Plan during Quarter 3 of 2019/2020.

Yours sincerely,



Brian Hearne
General Manager
Woodlawn Mine