

# **2019 External Integrated Water Use Licence (IWUL) Audit (Block OI & OL)- Leeuwpan Coal Mine**

## **Report**

**Version - Final**

**14 May 2019**

**Exxaro Resources Ltd.**

**GCS Project Number: 19-0176**

**Client Reference: 4512329911**



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## EXECUTIVE SUMMARY

### Project Background

Exxaro Resources Ltd's (Exxaro) Leeuwpán Coal Mine (Leeuwpán) is located 10 kilometres (km) south east of Delmas, in the Victor Khanye Local Municipality. The mine falls within the Nkangala District Municipality in the Mpumalanga Province.

Leeuwpán is an operational coal mine and is situated in the upper reaches of the Bronkhorstspuit catchment in quaternary catchment B20A. In compliance with the National Water Act, 1998 (Act No. 36 of 1998) (NWA), the Department of Water and Sanitation (DWS) issued an Integrated Water Use Licence (IWUL) to Leeuwpán for the mining of the Block OI and OL Expansion project (Licence No. 04/B20A/CIJ/4032) on the 18<sup>th</sup> December 2015.

In terms of the IWUL Condition 10 of Appendix I:

- The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this license.

It is in this regard that GCS Water and Environment (Pty) Ltd (GCS) was contracted to conduct the 2019 annual external audit at Leeuwpán (Block OI and OL) to determine their compliance with relation to the conditions detailed in the IWUL.

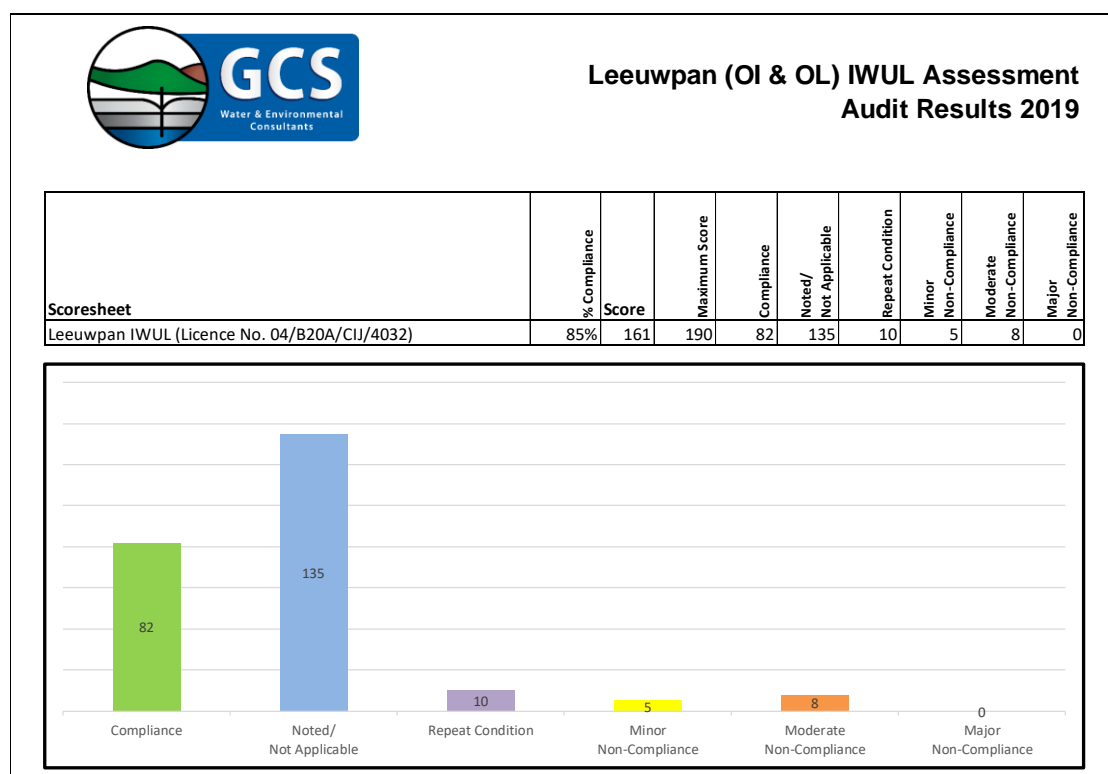
### Audit Process:

GCS conducted the audit and site visit on the 13<sup>th</sup> of March 2019. The external IWUL audit process followed included the following steps:

- Literature review of available information and the IWUL;
- Compilation of the audit checklist;
- Conducting the on-site audit observation using the prepared checklists, at the places where the water uses are taking place; and
- Conducting the closing meeting at the end of the audit.

### Audit Results:

From the auditing findings, it can be concluded that Leeuwpán's Block OI and OL is overall compliant (85% compliant) with their IWUL. Most conditions have been met or are not applicable, while other conditions have been partially met. Where non-compliances were recorded, the auditor contextualised the non-compliance in terms of the intensity. This equates to an objective view of the seriousness of the non-compliance and also then leads to recommendations where minor to moderate non-compliances have been observed. A summary of the audit findings is provided in the Figure that follows.



From the audit findings, it is the opinion of the auditor that Leeuwpan give attention to the following identified non-compliances:

**Quantity of water S21(a) and (j):**

- No flow meters have been installed at Pit OI and therefore, no volumes for dewatering could be established. A record of water taken can therefore also not be compiled. Leeuwpan mine personnel indicated that they are in the process of establishing a pipeline strategy which will be implemented this year in which flow meters will be installed.
  - It is recommended that flow meters be implemented as soon as possible to record the amount of water being dewatered at the OI Pit.
- The groundwater from pit OI is not being disposed of into the PCD on farm Moabsvelden 248IR Portion 2 and 16. Instead, the water is being transferred to a PCD on Kenbar 257IR.
  - It is recommended that Leeuwpan apply for the location of this PCD to be amended as well as inform the Department that they will be transferring the water to the PCD located on the Kenbar property.
- Wastewater for dust suppression is being taken from the main PCD as the PCD licenced in this licenced is not being built. The licence has authorised 7650m<sup>3</sup> for dust suppression, however, 9316m<sup>3</sup> for the year 2018 was used.

- It is recommended that Leeuwpán apply for this condition to be amended as the PCD is not being constructed. It is also recommended that Leeuwpán do not exceed the authorised limit for dust suppression.

**Quality of water:**

- According to Golder's quarterly water monitoring report (December 2018), the following constituents increased at downstream sites compared to upstream at least once during the reporting period: total dissolved solids, electrical conductivity, sulphate (exceeded IWUL limit), sodium, calcium, magnesium (exceeded IWUL limits), total hardness, total phosphorus E. coli (exceeded IWUL), sodium absorption ratio and dissolved oxygen (a positive sign) increased downstream.
  - It is recommended that Leeuwpán investigate the cause of the decrease in water quality to downstream users as well as the implementation of appropriate mitigation measures as soon as possible.
- Golder conducts the surface water monitoring monthly and the groundwater quarterly. January's 2018 report includes the test for all trace metal elements, however, July's 2018 report did not test for such.
  - It is recommended that Leeuwpán test all surface and groundwater monitoring points for a full spectrum of heavy metals twice a year.

**Biota (Bronkhorstspuit):**

- According to the report by Clean Stream (June 2018), the Average Score Per Taxon (ASPT) has declined, indicating a decline in water quality and the loss of taxa with a requirement for good water quality.
  - It is recommended that Leeuwpán investigate the cause of the decrease in diversity and implement mitigation plans as soon as possible. GCS and Clean Stream are aware that Leeuwpán is not the only mine along the Bronkhorstspuit.

**Monitoring and reporting:**

- Non-compliances were highlighted in the internal audit, however, corrective actions for the non-compliances were not listed.
  - It is recommended that Leeuwpán include all mitigation measures and a record of corrective actions.
- Annual public participation meetings are undertaken by Exxaro. The last meeting was a farmer's engagement which was held on the 15 March 2019. Proof was provided to the auditors. However, the proof was not submitted to the Provincial Head before the 31st March 2019.
  - It is recommended that the proof is submitted to the Provincial Head as soon as possible.

## CONTENTS PAGE

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	PURPOSE OF THE AUDIT .....	1
1.2	INDEPENDENT EXTERNAL AUDITOR.....	1
1.3	ASSESSMENT TEAM MEMBERS.....	2
<b>2</b>	<b>EXTERNAL AUDIT PROCESS .....</b>	<b>2</b>
2.1	STEP 1: AUDIT OBJECTIVES.....	3
2.2	STEP 2: SCOPE OF THE AUDIT.....	3
2.3	STEPS 3: INFORMATION REQUIRED TO CONDUCT THE AUDIT.....	3
2.4	STEPS 4: CONDUCTING THE AUDIT .....	4
2.5	STEPS 5: EVALUATING THE AUDIT RESULTS.....	4
2.6	STEP 6: PRESENTING THE AUDIT RESULTS.....	4
2.7	STEP 7: DECISION-MAKING BASED ON AUDIT RESULTS .....	6
2.8	STEP 8: INSTITUTING CORRECTIVE ACTION.....	6
2.9	ASSUMPTIONS AND LIMITATIONS.....	6
<b>3</b>	<b>AUDIT SCORING AND FINDINGS .....</b>	<b>7</b>
<b>4</b>	<b>PHOTO LOG .....</b>	<b>45</b>
<b>5</b>	<b>CONCLUSION AND SUMMARY OF FINDINGS .....</b>	<b>46</b>

## LIST OF FIGURES

Figure 3.1	IWUL Conditions Compliance Summary .....	8
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## LIST OF TABLES

Table 1.1	Assessment Team .....	2
Table 2.1	Process to obtain audit information.....	4
Table 3.1	Leeuwpan - 2019 IWUL Audit Findings .....	9
Table 4.1	Photographic Log .....	45

## 1 INTRODUCTION

Exxaro Resources Ltd's (Exxaro) Leeuwpán Coal Mine (Leeuwpán) is located 10 kilometres (km) south east of Delmas, in the Victor Khanye Local Municipality. The mine falls within the Nkangala District Municipality in the Mpumalanga Province.

Leeuwpán is an operational coal mine and is situated in the upper reaches of the Bronkhorstspuit catchment in quaternary catchment B20A. In compliance with the National Water Act, 1998 (Act No. 36 of 1998) (NWA), the Department of Water and Sanitation (DWS) issued an Integrated Water Use Licence (IWUL) to Leeuwpán for the mining Block OI and OL Expansion (Licence No. 04/B20A/CIJ/4032) on the 18<sup>th</sup> December 2015. The IWUL was issued for various water uses required for the expansion project in terms of Section 21 of the NWA. The license was issued for the following water uses:

- Section 21(a) - Taking of water from a water resource;
- Section 21(c) - Impeding or diverting the flow of water in a watercourse;
- Section 21(g) - Disposing of waste in a manner which may detrimentally impact on a water resource;
- Section 21(i) - Altering the bed, banks, course or characteristics of a watercourse; and
- Section 21(j) - Removing, discharging or disposing of water found underground.

### 1.1 Purpose of the Audit

In terms of the IWUL Condition 10 of Appendix I:

- The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this license.

It is in this regard that GCS Water and Environment (Pty) Ltd (GCS) was contracted to conduct the 2019 annual external audit at Leeuwpán to determine their compliance with relation to the conditions detailed in the IWUL.

### 1.2 Independent External Auditor

GCS conducted the audit and site visit on the 13<sup>th</sup> of March 2019. GCS provides professional consulting services in the fields of water, environmental and earth sciences.

The role of the Independent Environmental Auditor is to provide independent, objective and professional advice on the environmental performance of the project with regards to the approved IWUL.

Specific duties include:

- Review and audit in an independent, objective and professional manner all aspects related to the IWUL;
- Validate and confirm the accuracy of monitoring results, monitoring equipment, monitoring locations, monitoring procedures and locations of sensitive receivers;
- Conduct a random site inspection;
- Audit the IWUL requirements against the status of implementation of environmental protection measures on site;
- Review the effectiveness of environmental mitigation measures and project environmental performance as it is related to the purpose and spirit of the NWA and license conditions;
- Where required, verify and certify the relevant design plans and submissions under the license;
- Where required, verify the investigation results of complaint cases and the effectiveness of corrective measures; and
- Provide feedback on the audit results to Leeuwpán and the DWS.

### 1.3 Assessment Team Members

Details of the members of the independent assessment team are listed below in Table 1.1.

**Table 1.1 Assessment Team**

	Water Use Authorisation Unit Manager	Water Use Authorisation Consultant	Water Use Authorisation Consultant
<b>Name:</b>	Kate Cain Pri. Sci.Nat (Reg No 400172/14)	Shayna-Ann Cuthbertson Can. Sci.Nat (Reg No.119961)	Kelebone Sekonyela
<b>Company:</b>	GCS Water and Environment (Pty) Ltd		
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## 2 EXTERNAL AUDIT PROCESS

The external IWUL audit process followed included the following steps:

- Literature review of available information and the IWUL;
- Compilation of the audit checklist;
- Conducting the on-site audit observation using the prepared checklists, at the places where the water uses are taking place; and



- Conducting the closing meeting at the end of the audit.

## 2.1 Step 1: Audit Objectives

The objectives of the audit need to be clearly defined and established before an internal or external audit begins. Defining the objectives is important as it is against these objectives that Leeuwpán will be reviewed and expected to improve.

The following objectives formed the basis for the IWUL Audit:

- Ensuring legal compliance in terms of the IWUL and any amendments in relation to the National Water Act, 1998 (Act No. 36 of 1998) (NWA);
- Checking that the environmental management tools to achieve compliance are used correctly and efficiently;
- To check whether the environmental management tools are effectively fulfilling their intended purpose of environmental compliance;
- Ensuring environmental performance on a continuous basis, i.e. throughout the life cycle of the Leeuwpán operation;
- Reducing environmental liability;
- To facilitate the transference of information or best practice between operating units;
- To increase environmental awareness among the employees; and
- To track the environmental accountability of managers.

## 2.2 Step 2: Scope of the Audit

The conditions of the IWUL stipulate that regular performance assessments need to be undertaken to ensure compliance with the prescribed conditions as contained in the said documents. Accordingly, Leeuwpán has commissioned GCS to undertake the annual IWUL Audit for 2019 and compile an Audit Report for submission to the DWS. In line with the conditions, the IWUL Audit focused on all of the conditions included as part of the approved License for Block OI and OL, to ensure that the stipulated conditions are executed and adhered to by the Leeuwpán.

This IWUL Audit is undertaken to mean a regular, systematic, documented verification of whether Leeuwpán's Block OI and OL are in compliance with the conditions of the approved IWUL, the provisions of the NWA, and whether environmental performance objectives and targets are being met.

## 2.3 Steps 3: Information Required to Conduct the Audit

Table 2.1 sets out the procedures that were used to obtain the audit information.

**Table 2.1 Process to obtain audit information**

Action	Description
<b>Inspection</b>	Inspection consists of examining records and documents. Inspection of records and documents provides audit evidence of varying degrees of reliability depending on their nature and source and the effectiveness of internal controls over their processing.
<b>Observation</b>	Observation consists of on-site observation of the activities being conducted on site.
<b>Enquiry</b>	Enquiry consists of seeking information from knowledgeable persons inside the organisation.
<b>Confirmation</b>	Confirmation consists of making enquiries to corroborate information contained in the IWUL.
<b>Computation</b>	Computation consists of checking the accuracy of source documents and PCM's records or performing independent checks of information relating to environmental aspects and impacts.

## 2.4 Steps 4: Conducting the Audit

The audit consisted of comparing the information gathered during on-site interviews, from reports as well as assessing on-site activities with the conditions of the IWUL. A checklist was developed based on the IWUL and used as an auditing tool to establish the audit results.

## 2.5 Steps 5: Evaluating the Audit Results

The results of the audit are calculated and presented as a percentage score. The auditor assesses the final compliance percentage and evaluates this in relation to the realistic representation of on-site activities, taking into account South African Environmental Legislation. Through such an assessment, the auditor should determine whether the final compliance percentage is a true representation of on-site activities and a final recommendation should be made regarding actual compliance.

## 2.6 Step 6: Presenting the Audit Results

The findings of the audit are included in Table 3.1 of this Report. The audit findings also include practical recommendations whereby the various non-compliance issues can be corrected.

All findings were ranked according to the criteria indicated in the table below. The colour coding assigned to the rankings is used to visually indicate areas of compliance, minor non-compliance, moderate non-compliance, and major non-compliance. Furthermore, to indicate which conditions are not applicable to the on-site activities and which are repeat conditions that have already been scored. Each colour coding has a value (score) attached to it.

RANKING	SCORE
Compliant	2
Minor non-compliance	1
Noted/Not Applicable	0

RANKING	SCORE
Repeat Condition	-
Moderate non-compliance	-1
Major non-compliance	-2

All findings were ranked according to the following criteria:

**Noted/Not-Applicable:**

- The specific condition is not relevant to the current on-site activities.

**Repeat Condition:**

- The specific condition is a repeat of a previous condition.

**Compliant:**

- Leeuwpan complies with the conditions as stated in the IWUL.

**Non-compliance:**

- Minor Non-compliance:**
  - Isolated observations demonstrating that full compliance to the environmental requirements on site have not been, or will not be, fully achieved.
- Moderate Non-compliance:**
  - There is a substantial failure to meet the environmental requirements for the project, there is a possibility of substantial environmental degradation and/or pollution, and/or objective evidence was observed raising doubt as to the integrity of data or records inspected.
- Major Non-compliance:**
  - There is a critical failure against legal requirements or management response that presents an immediate or significant risk that could result in prosecution and/or adverse legal findings due to failure to meet regulatory requirements; result in immediate injury or serious injury; result in prolonged business outage; and/or could result in serious damage to the project's reputation.

The findings of the audit are entered into the audit spreadsheet which tabulates the percentage of compliance to the regulatory requirements. The table can be interpreted as follows:

- Maximum Score** - represents the score if 100% compliance is achieved; i.e. the number of conditions minus the conditions which are not applicable or repeated, multiplied by the score allocation of 2.
- Compliance, minor non-compliance, moderate non-compliance and major non-compliance** - represent the number of times the specific rating was triggered;
- Score** - represents the sum of the ratings (rating times the corresponding score); and
- Percentage (%) compliance** - represents the score divided by the maximum score.

It must be noted that duplicate conditions are not scored due to the fact that this will negatively influence the scoring results. Duplicate conditions are marked as a Repeat Condition.

## **2.7 Step 7: Decision-Making Based on Audit Results**

Decision making, based on the audit results, must have the following objectives; to improve the present situation and to institute fair and reasonable corrective action. Leeuwpan should make decisions based on the significance of the problem or non-compliance and the resources required to improve the situation.

## **2.8 Step 8: Instituting Corrective Action**

It is recommended that an environmental action plan be implemented to address the audit recommendations. The plan may include:

- Goals;
- Strategies;
- Performance indicators;
- Responsibilities; and
- A timetable for achievement.

An IWUL Audit is an effective management tool on condition that the recommendations, as identified in the audit, are considered and implemented. The audit provides a basis for recommending actions to correct any deficiencies and to address any areas of environmental non-compliance recorded as part of the audit findings.

## **2.9 Assumptions and Limitations**

The findings, results, observations, conclusions and recommendations given in this IWUL audit are based on the auditor's best legal and professional knowledge as well as available information.

Although GCS exercises due care and diligence in rendering services and preparing documents, GCS accepts no liability, and the client by receiving this document, indemnifies GCS and its directors, managers, agents and employees against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by GCS and by the use of the information contained in this document.

This audit must not be altered or added to without the prior written consent of the auditor. This also refers to electronic copies of this audit which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this audit must make reference to this IWUL Audit. If these

form part of a main audit relating to this investigation or report, this audit must be included in its entirety as an annexure or separate section to the main audit.

### **3 AUDIT SCORING AND FINDINGS**

The findings of the 2019 external IWUL Audit are presented in Table 3.1. During the audit, information as indicated in the issued IWUL, was verified and assessed. As such, Table 3.1 indicates the applicable License requirements in terms of compliance. The audit allows for compliance with each condition in the IWUL to be determined. Where non-compliances are noted, practical recommendations whereby the various non-compliance issues can be corrected are provided.

All IWUL conditions and findings are entered into an audit spreadsheet which tabulates the percentage of compliance of Leeuwpan to the regulatory requirements detailed in the IWUL. After inputting all of the conditions and level of compliance to the IWUL conditions, it was determined that Leeuwpan is 85% compliant to the conditions of the IWUL

Refer to Figure 3.1 for a summary of the compliance of Leeuwpan in relation to the conditions of the IWUL. The figure shows the number of non-compliances observed as well as the number of conditions noted or not applicable. It can be seen from the figure that the mine is compliant with many of the IWUL conditions. Most of the condition were observed to be not applicable or noted.

It must be noted that duplicate conditions are not scored, due to the fact that this will negatively influence the scoring results. Duplicate conditions are marked as Repeat Conditions.

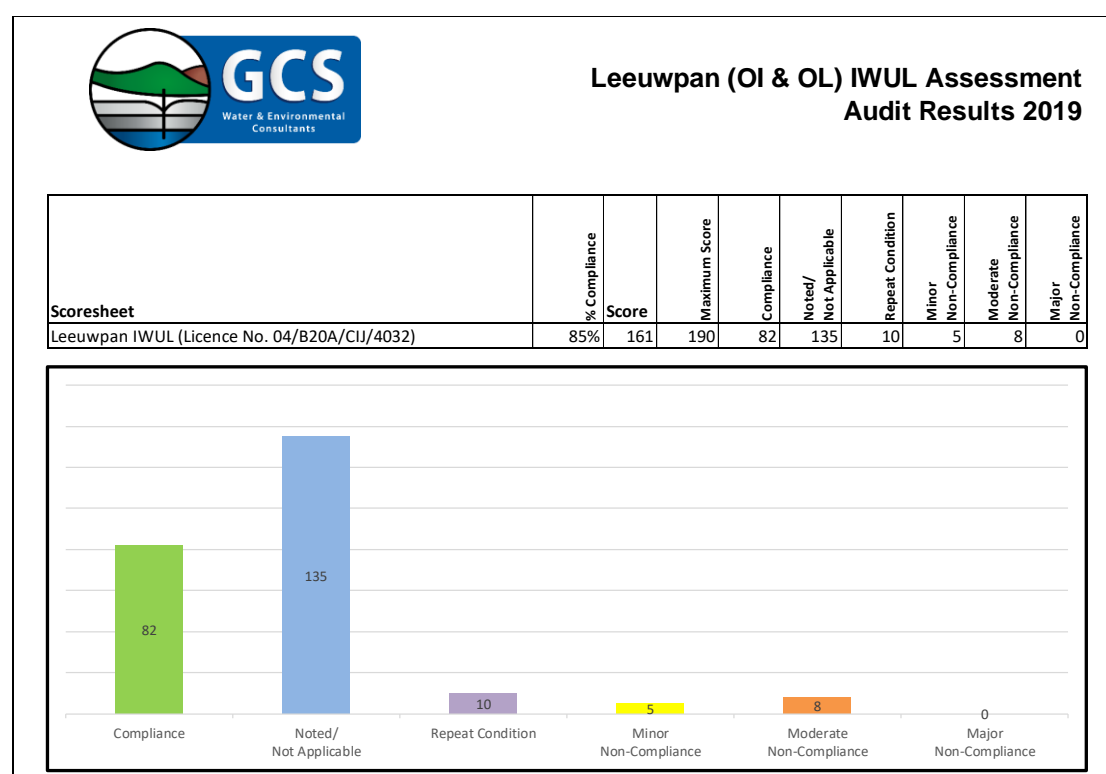


Figure 3.1 IWUL Conditions Compliance Summary

Table 3.1 Leeuwpán - 2019 IWUL Audit Findings

Leeuwpán (Block OI & OL) External Audit					
DATE:	13/03/2019		SITE:	Leeuwpán Mining Operations: Block OI & OL	
No	Conditions	Status	Score	Observations	Recommendations
APPENDIX I		Noted / Not Applicable	0		
	General conditions for the licence	Noted / Not Applicable	0		
1	This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998)	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee understands that this licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998).	No recommendations are applicable.
2	The responsibility for complying with the provisions of the licence is vested in the licensee and not any other person or body.	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee understands that the provisions of the licence are vested in the licensee and not any other person or body.	No recommendations are applicable.
3	The Licensee must immediately inform the Provincial Head of any change of name, address, premises and/or legal status.	Noted/Not Applicable	0	<b>Not Applicable:</b> There has been no change of name and address, premises and/or legal status of the licensee.	No recommendations are applicable.
4	If the property in respect of which this licence is issued is subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Regional Head of the Department within 60 days of the said change taking place.	Noted/Not Applicable	0	<b>This point has been noted:</b> The properties for which the IWUL has been issued have not been subdivided, sold or consolidated since of the issuance of the IWUL.	No recommendations are applicable.
5	If a water user association is established in the area to manage the resource, membership of the Licensee to this association is compulsory. Rules, regulations and water management stipulation of such association must be adhered to.	Compliance	2	<b>Compliant:</b> The licensee is part of the farmers' association in the project area. The licensee was a founding member of the 'Wilge Catchment Management Association', however this association is currently inactive. The licensee has committed to joining a water user association should a new one be established.	No recommendations are applicable.

6	While effect must be given to the Reserve as determined in terms of the Act, where a desktop determination of the Reserve has been used in issuance of a licence, when a comprehensive determination of the Reserve has finally been made; it shall be given effect to.	Noted/Not Applicable	0	<b>This point has been noted:</b> A comprehensive geohydrological study was done and submitted with the IWULA/IWWMP for authorisation by the DWS. Leeuwpán will give effect to a comprehensive determination of the Reserve once it has been made available.	No recommendations are applicable.
7	The licence shall not be construed as exempting the Licensee from compliance with the provisions any other applicable Act, Ordinance, Regulation or By-law.	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee is aware that this license does not exempt the mine from compliance with the provisions of any other applicable Act, Ordinance, Regulation or By-law. The mine has been authorised in terms of the MPRDA, the NEMA and the NWA.	No recommendations are applicable.
8	The licence and amendment of this licence are also subject to all the applicable procedural requirements and other applicable provisions of the Act, as amended from time to time.	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee is aware that the mine needs to comply to all procedural requirements and other applicable provisions of the Act.	No recommendations are applicable.
9	The Licensee shall conduct an annual internal audit on compliance with the conditions of licence. A report on the audit shall be submitted to the Provincial Head within one month of the finalisation of the audit.	Compliance	2	<b>Compliant:</b> The 2019 internal audit was conducted on the 7 <sup>th</sup> February 2019. The report is still in the process of being finalised.	It is recommended that once the internal audit has been finalised, the Licensee must submit the report to the DWS within one month of finalisation.
10	The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence.	Compliance	2	<b>Compliant:</b> GCS Water and Environment (Pty) Ltd (GCS) have been appointed to conduct the 2019 external IWUL Audit. The site visit was conducted on 13 <sup>th</sup> March 2019. This report serves as the 2019 IWUL audit.	No recommendations are applicable.
11	Any incident that causes or may cause water pollution shall be reported to the Provincial Head or his/her designated representative within 24 hours.	Noted/Not Applicable	0	<b>This point has been noted:</b> No incidents have occurred at the mine since the previous audit was conducted in 2018.	No recommendations are applicable.
12	If the water use described in this licence is not exercised within 3 years of the date of the licence, the authorization will be withdrawn. Upon commencement of the water use, the Licensee must inform the relevant authority in writing.	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee is aware that if the water use is not exercised within 3 years, the authorisation will be withdrawn. The water use activities will be exercised for the life of mine (LOM). Exxaro informed the relevant authority of the commencement of the water uses.	No recommendations are applicable.



13	The Licensee shall establish and implement a continual process of raising awareness amongst itself, its workers and stakeholders for the need for Water Conservation/Water Demand Management.	Compliance	2	<b>Compliant:</b> During the induction of employees, water conservation is detailed. The licensee is also utilising the 'Water Week' celebrated in March to raise awareness. Monthly Safety Health and Environment (SHE) talks are undertaken during which, water issues are raised and communicated. Screen communications also take place at the mine. There are posters highlighting water conservation on site. Monthly Toolbox Talks are still held.	No recommendations are applicable.
14	Notices prohibiting unauthorized persons from entering water use premises must be displayed.	Compliance	2	<b>Complaint:</b> All pits and dams are within the mine boundary. The entire mine boundary is fenced off. There is also security present at various locations on the mine and at the entrance gate. Signs of restricted access are present at all the pits. The dams are fenced off and the relevant notices of unauthorised entry are present along the boundary fences of these areas. Refer to Section 4 for the photo log.	No recommendations are applicable.
15 15.1 15.2 15.3	The Department accepts no liability for any damage, loss or inconvenience of whatever nature, suffered as a result of/ amongst other things. Any force majeure event; Siltation of the river or dam basin; and Required Reserve releases.	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee is aware that the Department accepts no liability for any damage, loss or inconvenience of whatever nature, suffered as a result of/ amongst other things.	No recommendations are applicable.
<b>APPENDIX II</b>		Noted / Not Applicable	0		
<b>Section 21(a) water use: taking water from a water resource</b>		Noted / Not Applicable	0		
1	This licence authorises the taking of water in cubic metres per annum (m3/a) in properties as indicated in Table 1 on the IWUL report.	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee is aware that the licence authorises 72 000m3/annum of water taken from Pit OI. Refer to the condition below for the compliance rating.	No recommendations are applicable.

2	The quantity of water authorised to be taken in terms of this licence may not be exceeded without prior authorisation by the Minister.	Moderate non-compliance	-1	<b>Moderate Non-Compliance:</b> No flow meters have been installed at Pit OI and therefore, no volumes for dewatering could be established. Leeuwpan mine personnel explained that they are in the process of establishing a pipeline strategy which will be implemented this year.	It is recommended that a flow meter be implemented as soon as possible to record the amount of water being dewatered at the OI Pit.
3	This licence does not imply any guarantee that the said quantities and qualities of water will be available at present or at any time in the future.	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee is aware that the quantity and quality of water will not always be available.	No recommendations are applicable.
4	The abovementioned volume may be reduced when the licence is reviewed.	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee is aware that the volume (72 000m <sup>3</sup> /annum) may be reduced when the licence is reviewed.	No recommendations are applicable.
5	The licensee shall continually investigate new and emerging technologies and put into practice water efficient devices or apply technique for the efficient use of water containing waste, in an endeavour to conserve water at all times.	Compliance	2	<b>Compliant:</b> The mine reuses water attained/extracted from the product through the use of a filter press. The filter press allows for approximately 60-80% of the water in the product to be regained from this process. Leeuwpan also work on a zero effluent discharge process.	No recommendations are applicable.
6	All water taken from the resource shall be measured as follows:	Noted/Not Applicable	0	<b>Not Applicable.</b> Refer to the conditions below for the compliance rating.	No recommendations are applicable.
6.1	The daily quantity of water taken must be metered or gauged and the total recorded at the last day of each month; and	Moderate non-compliance	-1	<b>Moderate Non-Compliance:</b> No flow meters have been installed at Pit OI and therefore, no daily quantities can be measured and recorded at the last day of each month. Leeuwpan mine personnel explained that they are in the process of establishing a pipeline strategy which will be implemented this year.	It is recommended that a flow meter be established as soon as possible to record the amount of water being dewatered at the OI Pit.
6.2	The Licensee shall keep record of all water taken and a copy of the records shall be forwarded to the Regional Head on or before 25 January and 25 July of each year.	Moderate non-compliance	-1	<b>Moderate Non-Compliance:</b> No flow meters have been installed at Pit OI and therefore, no record of water being taken can be recorded or submitted. Leeuwpan personnel stated that flow meters will be installed in 2019.	It is recommended that a flow meter be established as soon as possible to record the amount of water being dewatered at the OI Pit.

7	No water taken may be pumped, stored, diverted, or alienated for purposes other than intended in this licence, without written approval by the Minister or his/her delegated nominee.	Compliance	2	<b>Compliant:</b> The water abstracted is done according to the IWUL and used as intended.	No recommendations are applicable.
8	The Licensee shall install and monitor appropriate water measuring to measure the amount of water abstracted, received and/or consumed, as applicable to the infrastructure.	Moderate non-compliance	-1	<b>Moderate Non-Compliance:</b> No flow meters have been installed at Pit OI and therefore, no amount of water can be measured. Leeuwpán personnel stated that flow meters will be installed in 2019.	It is recommended that a flow meter be established as soon as possible to record the amount of water being dewatered at the OI Pit.
9	Notices prohibiting unauthorised persons from entering certain areas, as well as internationally acceptable signs indicating the risks involved in case of an unauthorised entry must be displayed along the boundary fence of these areas.	Repeat Condition	-	<b>Repeat Condition:</b> This is a repeat condition. Refer to Condition 14 of Appendix I for compliance rating. All pits and dams are within the mine boundary. The entire mine boundary is fenced off. There is also security present at various locations on the mine and at the entrance gate. Signs of restricted access are present at all the pits. The dams are fenced off and the relevant notices of unauthorised entry are present along the boundary fences of these areas.	No recommendations are applicable.
10 10.1 10.2 10.3 10.4	The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of- shortage of water; inundations or flood; siltation of the resource; and required reserve releases.	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee is aware the Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered.	No recommendations are applicable.
11	The Licensee shall ensure that all measuring devices are properly maintained and in good working order and must be easily accessible. This shall include a programme of checking, calibration, and/or renewal of measuring devices.	Noted/Not Applicable	0	<b>Not Applicable.</b> No flow meters have been installed at Pit OI, therefore, measuring devices cannot be maintained as of yet. Leeuwpán will be installing measuring devices in 2019.	It is recommended that once measuring devices have been installed, they are properly maintained.

12	The Licensee shall establish a programme of formal Information Management System, which maintains a database on water supply, distribution and delivery infrastructure.	Compliance	2	<b>Compliant:</b> An information management system is in operation at the mine. The mine is ISO 14 001:2015 certified and therefore has the associated Database where water data is monitored and reported to Exxaro Head Quarters where it is also further recorded on their Database. The licensee also communicates via personal (face to face) and email communication. Incident notification communication is conducted when necessary.	No recommendations are applicable.
13	The Licensee shall establish and implement a continual process of raising awareness amongst itself, its workers and stakeholders for the need to for Water Conservation and Water Demand Management.	Repeat Condition	-	<b>Repeat Condition:</b> This is a repeat condition. Refer to Condition 13 of Appendix I for compliance rating. During the induction of employees, water conservation is detailed. The licensee is also utilising the 'Water Week' celebrated in March to raise awareness. Monthly Safety Health and Environment (SHE) talks are undertaken during which, water issues are raised and communicated. Screen communications also take place at the mine. There are posters highlighting water conversation on site. Monthly Toolbox Talks are still held.	No recommendations are applicable.
<b>APPENDIX III</b>		Noted / Not Applicable	0		
<b>Section 21 (c) of the Act: Impeding or diverting the flow of water in a watercourse</b> <b>Section 21 (i) of the Act: Altering the bed, banks, course or characteristic of a watercourse</b>		Noted / Not Applicable	0		
1	<b><u>CONSTRUCTION, OPERATION AND MAINTENANCE</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
1.1	The licence authorises the following section 21 (c) and (i) water use activities as set out in Table 2 and in the water use application reports submitted to the Department. (refer to Table 2 of the IWUL)	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee is aware that they need to carry out and complete all activities according to the Table on pg.9 of 31 in the IWUL. It should be noted that the new plant and infrastructure will not be established.	It is recommended that Leeuwpan informs the DWS that the new plant and associated infrastructure are no longer going to be constructed. .

				All product will be processed at the existing plant and the existing infrastructure will be used.	
1.2	No activity must take place within the 1:100 year flood line or the delineated riparian habitat, whichever is the greatest, or within 500 m radius from the boundary of any wetland unless authorised by this licence.	Compliance	2	<b>Compliant:</b> All activities are taking place within the authorised area.	No recommendations are applicable.
1.3	The conditions of the authorisation must be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of these activities and the Licensee must take such measures that are necessary to bind such persons to the conditions of this licence.	Compliance	2	<b>Compliant:</b> All persons are made aware of the IWUL. Matrices were sent to the Head of department to distribute to operation managers and sub-ordinates.	No recommendations are applicable.
1.4	A suitably qualified person(s), appointed by the Licensee, and approved in writing by the Provincial Head must be responsible for ensuring that the activities are undertaken in compliance with the specifications as set out in reports submitted to the Department or the Responsible Authority and the conditions of this licence.	Compliance	2	<b>Compliant:</b> Sthembiso Hinani as well as the environmental department at Leeuwpán mine will ensure the compliance of the license.	No recommendations are applicable.
2	<b><u>FURTHER STUDIES AND INFORMATION REQUIREMENTS</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
2.1	If the Licensee is not the end user/beneficiary of the water use related infrastructure and will not be responsible for long term maintenance and management of the infrastructure, the Licensee must provide a programme for hand over to the successor-in-title including a brief management/maintenance plan and the agreement for infrastructure along with allocation of responsibilities, within three (3) months of the date of issuing of this licence.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpán is the end user of the water use related infrastructure.	No recommendations are applicable.

2.2	For all the activities listed under condition 1.1, Table 2, "as-built" plan(s) and engineering drawing(s) prepared by a registered professional engineer, must be submitted to the Provincial Head within two (2) months of the date of issuance of this licence. These plan(s) and drawing(s) must indicate the watercourse(s) including wetland boundaries and layout and structure location(s) of all infrastructure impeding and/or diverting flow of watercourses as well as alterations to watercourse(s) on the properties.	Compliance	2	<b>Compliant:</b> All as-built plans and engineering drawings were submitted as part of the IWULA.	No recommendations are applicable.
3	<b><u>PROTECTIVE MEASURES</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
3.1	<b>Storm Water Management</b>	<b>Noted/Not Applicable</b>	<b>0</b>	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
3.1.1	Storm water management practices must be constructed, operated and maintained in a sustainable manner throughout the project and for the water use activities set out in condition 1.1 Appendix III and must include but are not limited to the following;	Compliance	2	<b>Compliant:</b> Stormwater management practices were observed to be constructed, operated and maintained in a sustainable manner. Pit OI is only a box-cut, while concurrent rehabilitation is occurring during mining at Pit OL. The new plant and infrastructure are not going to be established.	No recommendations are applicable.
3.1.2	Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the watercourse(s);	Noted/Not Applicable	0	<b>Not Applicable.</b> Vegetation clearance has been undertaken for the construction and mining of the pits. There are no streams/rivers within proximity to the operational pits. The Bronkhorstspuit will be reached in 2024. The license has authorised the mining through a wetland and the new plant and relevant infrastructure are not being established.	No recommendations are applicable.
3.1.3	Storm water must be diverted from mining areas, stockpiles, infrastructure areas and roads and must be managed in such a manner as to disperse runoff and to prevent the concentration of storm water flow;	Compliance	2	<b>Compliant:</b> Stormwater management berms have been established. Clean water is diverted away from the mining areas and dirty water is contained within the dirty water footprint.	No recommendations are applicable.

				No concentration of water was observed during the audit site visit.	
3.1.4	The velocity of storm water discharges must be attenuated, and the banks of the watercourses protected, notably in this environment of dispersive soils;	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers currently nearby in this license and no stormwater is discharged from the site. The Bronkhorstspuit will be reached in 2024. The license has authorised the mining through a wetland and the new plant and relevant infrastructure are not being established.	No recommendations are applicable.
3.1.5	Storm water leaving the Licensee's premises must in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises;	Compliance	2	<b>Compliant:</b> No stormwater is leaving the premises. Stormwater berms have been established around the site to prevent stormwater entering the environment. The stormwater management plan has been designed to ensure the separation of clean and dirty water.	No recommendations are applicable.
3.5.6	Sheet runoff from paved, hardened surfaces and access roads need to be curtailed.	Compliance	2	<b>Compliant:</b> Stormwater berms have been established to prevent any sheet runoff.	No recommendations are applicable.
3.2	<b>Structures and Materials</b>	<b>Noted/Not Applicable</b>	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
3.2.1	The necessary erosion prevention measures must be employed to ensure the sustainability of all structures.	Compliance	2	<b>Compliant:</b> Erosion prevention measures such as berms and the use of re-vegetation of berms have been used to prevent erosion.	No recommendations are applicable.
3.2.2	The height, width and length of structures must be limited to the minimum dimension necessary to accomplish the intended function.	Compliance	2	<b>Compliant:</b> Structures have been designed to accomplish the intended function.	No recommendations are applicable.
3.2.3	Structures must not be damaged by floods exceeding the magnitude of floods occurring on average once in every 100 years.	Compliance	2	<b>Compliant:</b> No damage to structures caused by floods exceeding the magnitude of floods occurring on average once in every 100 years were observed during the audit site visit.	No recommendations are applicable.

3.2.4	Structures must be non-erosive, structurally stable and must not induce any flooding or safety hazard.	Compliance	2	<b>Compliant:</b> Pit OL is currently a box-cut. The structure was observed to be stable and it will not induce any flooding. Concurrent rehabilitation is occurring at Pit OL.	No recommendations are applicable.
3.2.5	Structures must be inspected regularly for accumulation of debris, blockage, erosion of abutments and overflow areas - debris must be removed and damages must be repaired and reinforced immediately.	Compliance	2	<b>Compliant:</b> Inspections on site are conducted weekly at Leeuwpan.	No recommendations are applicable.
3.2.6	All areas affected by construction must be rehabilitated upon completion of the construction phase of the development. Areas should be reseeded with indigenous vegetation species as required, and the use of seednets is recommended to prevent erosion.	Compliance	2	<b>Compliant:</b> Construction is still underway at Pit OL. Concurrent rehabilitation is occurring at Pit OL and indigenous vegetation is encouraged.	No recommendations are applicable.
3.2.7	Any access roads or crossings should be:	Noted/Not Applicable	0	<b>Not Applicable.</b> Refer to the conditions below for the compliance rating.	No recommendations are applicable.
3.2.7.1	Non-erosive, structurally stable and should not induce any flooding or safety hazard;	Compliance	2	<b>Compliant:</b> Access roads have been designed to be non-erosive, structurally stable and do not induce any flooding or safety hazard. Roads appeared to be in proper order during the audit site visit.	No recommendations are applicable.
3.2.7.2	Any damage is repaired immediately to prevent further damage;	Noted/Not Applicable	0	<b>This point has been noted:</b> The roads are repaired when needed. No damage was observed during the site visit.	No recommendations are applicable.
3.2.7.3	Non-polluting with respect to silt and litter that can be deposited into a watercourse;	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee is aware that no polluting of silt or litter may be deposited in a watercourse.	No recommendations are applicable.
3.2.7.4	Watercourse crossings to facilitate the movement of aquatic and non-aquatic organisms and fauna;	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no water crossings planned for this license.	It is recommended that Leeuwpan apply for this condition to be amended as there are no crossings.
3.2.7.5	Crossing surfaces must be tarred or concreted along the extent of the watercourse and extent at least 100m beyond the extent of the watercourse to minimize impacts on the characteristics of the watercourse;	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no water crossings planned for this license.	It is recommended that Leeuwpan apply for this condition to be amended as there are no crossings.



3.2.7.6	Where any road is within the 100m buffer zone of the watercourse, this portion of the road shall be concreted or tarred; and	Noted/Not Applicable	0	<b>This point has been noted:</b> All roads on site have been licensed and no roads are located within the 100m buffer zone of a watercourse.	No recommendations are applicable.
3.2.7.7	Not consist of any sulphur containing and/or other polluting material.	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee is aware that no structure can contain sulphur or any other polluting material.	No recommendations are applicable.
3.3	<b>Water Quality</b>	<b>Noted/Not Applicable</b>	<b>0</b>	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
3.3.1.	The Licensee shall sample the water quality monthly at monitoring points both upstream and downstream of the activities and report to the Responsible Authority within six (6) month after the results of each sampling event is received. (refer to Table 3 on the IWUL).	Compliance	2	<b>Compliant:</b> Monitoring points both upstream and downstream of the mine are monitored for water quality parameters monthly. Golder conducts the surface water monitoring at Leeuwpan. Proof of submission (06 January 2019) of the monitoring report was provided to the GCS auditors.	No recommendations are applicable.
3.3.2	Monitoring must continue for three (3) years after the cessation of the activities listed in condition 1.1 Appendix III. Monitoring must be undertaken as set out in Section 5 Appendix III.	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee has committed to monitoring for three (3) years after the cessation of the activities listed in listed in condition 1.1 and monitoring will be undertaken as set out in Section 5.	No recommendations are applicable.
3.3.3	Monitoring must be undertaken as set out in section 5 Appendix III	Compliance	2	<b>Compliant:</b> Monitoring is conducted as set out in Section 5.	No recommendations are applicable.
3.3.4	Activities that lead to elevated levels of turbidity of any watercourse(s) must be prevented, reduced, or otherwise remediated. Activities must be scheduled to take place during the dry seasons when flows are lowest where reasonably possible. If this is not possible and if management measures have not been provided for in the reports submitted to the Responsible Authority, the Licensee must submit such to the Responsible Authority for written approval before these activities commence. Natural in stream hydrology is to be used to determine which months constitute the low flow months.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams in the area of this license. The license has authorised the mining through a wetland. Activities are undertaken as authorised in the IWUL..	No recommendations are applicable.

3.3.5	The Licensee must ensure that the quality of the water to downstream water users does not decrease because of the water use activities listed under condition 1.1.	Moderate non-compliance	-1	<b>Moderate Non-Compliance:</b> According to Golder's quarterly water monitoring report (December 2018), the following constituents increased at downstream sites compared to upstream at least once during the reporting period: total dissolved solids, electrical conductivity, sulphate (exceeded IWUL limit), sodium, calcium, magnesium (exceeded IWUL limits), total hardness, total phosphorus E. coli (exceeded IWUL), sodium absorption ratio and dissolved oxygen (a positive sign) increased downstream.	It is recommended that Leeuwpán investigate the cause of the decrease in water quality to downstream users as well as the implementation of appropriate mitigation measures as soon as possible.
3.3.6	A qualified person must be appointed to assess the quality of water both upstream and downstream of the activities prior to commencement of construction.	Compliance	2	<b>Compliant:</b> Golder conducts the surface water monitoring monthly and the groundwater quarterly at Leeuwpán.	No recommendations are applicable.
3.3.7	Pollution of and disposal/spillage of any material into the watercourse must be prevented, reduced, or otherwise remediated through proper operation, maintenance and effective protective measures.	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee will ensure that pollution of and disposal/spillage of any material into the watercourse will be prevented, reduced, or otherwise remediated through proper operation, maintenance and effective protective measures. No disposal / spillage of material in a water course was noted during the site visit.	No recommendations are applicable.
3.3.8	Vehicles and other machinery must be serviced well above the 1:100 year flood line or delineated riparian habitat, whichever is the greatest. Oils and other potential pollutants must be disposed off at an appropriate licensed site, with the necessary agreement from the owner of such a site.	Compliance	2	<b>Compliant:</b> Vehicles are serviced above the 1:100 year flood line. Oils are disposed of by a licensed contractor.	No recommendations are applicable.
3.3.9	Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance and all storage facilities must be equipped with large, clearly readable material safety data sheets (MSDS).	Noted/Not Applicable	0	<b>Not Applicable.</b> No hazardous substances are being stored on site in relation to this IWUL. All hazardous substances are being stored at Leeuwpán's workshop.	No recommendations are applicable.

3.3.10	All reagent storage tanks and reaction units must be supplied with a bunded area built to cater for at least 110% of the capacity of the facility and provided with sumps and pumps return the spilled material back into the system. The system must be maintained in a state of good repair and standby pumps must be provided.	Noted/Not Applicable	0	<b>Not Applicable.</b> No reagent storage tanks and reaction units are being stored on site in relation to this IWUL. All reagent storage tanks and reaction units are being stored at Leeuwpan's workshop.	No recommendations are applicable.
3.3.11	The Licensee has to indicate to the Responsible Authority within sixty (60) days after issuance of this licence, the strategic placement of bio-swale, bio-filters, silt, litter and hydrocarbon (oil) traps to minimise the risk of pollutants entering the natural drainage system of the area. The submission must address also cleaning, maintenance and legal disposal of the contents of these traps. An oil recycling register must be in place to indicate that oils are recovered/ recycled above 20% from the monthly inventory for every oil storage unit.	Noted/Not Applicable	0	<b>Not Applicable.</b> No strategic placement of bio-swale, bio-filters, silt, litter and hydrocarbon (oil) traps will be on site. This fill fall under the main license.	No recommendations are applicable.
3.3.12	Where any coal spills along the stream crossings and roads occur, they have to be cleaned immediately. Daily inspections are recommended and to be recorded formally. Coal spills into watercourses will be communicated to the Provincial Head within two (2) days after it occurred. The Licensee must take precautionary measures to prevent reoccurrence.	Compliance	2	<b>Compliant:</b> Inspection of coal spills are undertaken on a regular basis along the roads. It should be noted that there are no stream crossings.	No recommendations are applicable.
3.3.13	The Licensee shall sample and analyse twice a year (dry - July and wet - January season) all surface and groundwater monitoring points for a full spectrum of heavy metals and submit this information with condition 3.3.1 Appendix II.	Minor non-compliance	1	<b>Minor Non-Compliance</b> Golder conducts the surface water monitoring monthly and the groundwater quarterly. January's 2018 report includes the test for all trace metal elements, however, July's 2018 report did not test for such.	It is recommended that Leeuwpan test all surface and groundwater monitoring points for a full spectrum of heavy metals twice a year.

3.3.14	Where dust suppression is practiced the following shall apply: Dust suppression activities shall not contaminate and/or pollute any watercourse and the Licensee must conduct six (6) monthly soil monitoring events to determine the impact of dust suppression on the receiving environment. Soil samples shall at least be analysed for pH, Electrical Conductivity (mS/m), Calcium (Ca) (mg/l), Magnesium (Mg) (mg/l), Potassium (K) (mg/l), Sodium (Na) (mg/l), Chloride (Cl) (mg/l), Sulphate (SO <sub>4</sub> ) (mg/l), Aluminium (Al) (mg/l), Iron (Fe) (mg/l), Manganese (mg/l) and Nitrate (NO as N) (mg/l). The soil monitoring program and reporting must be conducted by an independent, professional, qualified soil scientist and hydrologist. Soil samples to be compared with reference sites. The reporting is part of condition 3.3.1 Appendix III.	Compliance	2	<b>Compliant:</b> Golder conducts the bi-annual soil monitoring of Leeuwpan's OI-Pit Road. Soil samples are analysed for the constituents listed in the license.	No recommendations are applicable.
3.4	<b>Flow</b>	<b>Noted/Not Applicable</b>	<b>0</b>	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
3.4.1	The Licensee must determine flood lines (1:50 and 1:100 year) prior to construction to ensure risks are adequately managed. Flood lines must be clearly indicated on the site plan(s) and drawings along with all wetland boundaries.	Compliance	2	<b>Compliant:</b> Flood-line delineation studies formed part of the IWULA and are evident in the design drawings.	No recommendations are applicable.
3.4.2	The activities must be conducted in a manner that does not negatively affect catchment yield, hydrology and hydraulics. The Licensee must ensure that the overall magnitude and frequency of flow in the watercourse(s) does not decrease, other than for natural evaporative losses and authorised attenuation volumes.	Compliance	2	<b>Compliant:</b> Activities are undertaken as per the water uses licensed in the IWUL. There are no streams present near Pit OI and OL.	No recommendations are applicable.
3.4.3	Appropriate design and mitigation measures must be developed to minimise impacts on the natural flow regime of the watercourse i.e. through placement of structures/supports and to minimise turbulent flow in the watercourse.	Compliance	2	<b>Compliant:</b> Activities are undertaken as per the water uses licensed in the IWUL. There are no streams are present near Pit OI and OL. Relevant studies have been done which include mitigation measures.	No recommendations are applicable.

3.4.4	Structures must be designed in a way to prevent the damming of stream/river water and not impact on the flow of the water, during the construction and operational phases of all developments.	Compliance	2	<b>Compliant:</b> Activities are undertaken as per the water uses licensed in the IWUL. There are no streams/ivers are present near Pit OI and OL.	No recommendations are applicable.
3.4.5	The development may not impede natural drainage lines.	Compliance	2	<b>Compliant:</b> The development does not impede natural drainage lines unless authorised in terms of Section 21(c) and (i) of the NWA and licensed as part of the IWUL issued.	No recommendations are applicable.
3.4.6	The diversion structures may not restrict river flows by reducing the overall river width or obstructing river flow.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no diversion structures at Leeuwpan's Block OI and OL.	No recommendations are applicable.
3.4.7	The characteristics of the streambed are likely to be altered locally. In particular the rock and rubble created during the construction process is likely to have sharp edges, and not smooth surfaces that are typically associated with river rocks and pebbles. All rock and rubble must be removed from the watercourse once construction has been completed. Any rock placed in the watercourse to enhance the dissolved oxygen content of the water must adhere to the same criteria, namely only smooth rock surfaces to be placed within the watercourse.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/ivers structures at Leeuwpan's Block OI and OL. No rock and rubble entered a watercourse during construction activities.	No recommendations are applicable.
3.5	<b>Riparian and Instream Habitat (Vegetation and Morphology)</b>	Noted/Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
3.5.1	Activities (including spill clean-up) must start up-stream and proceed into a down-stream direction, so that the recovery processes can start immediately, without further disturbance from upstream works.	Noted/Not Applicable	0	<b>This point has been noted:</b> Activities will start up-stream and proceed into a down-stream direction. It must be noted that Block OI is far from the river.	
3.5.2	Operation and storage of equipment must not take place within the 1:100 year flood line or delineated riparian habitat, whichever is the greatest unless authorised in this licence.	Compliance	2	<b>Compliant:</b> No equipment is stored within the 1:100 year floodline.	No recommendations are applicable.
3.5.3	Activities must not occur in sensitive riffle habitats.	Compliance	2	<b>Compliant:</b> No activities occur in sensitive riffle habitats unless authorised as part of the IWUL issued.	No recommendations are applicable.

3.5.4	Indigenous riparian vegetation, including dead trees, outside the limits of disturbance indicated in the site plans must not be removed from the area.	Compliance	2	<b>Complaint:</b> Indigenous riparian vegetation, including dead trees, outside the limits of disturbance have been not been disturbed.	No recommendations are applicable.
3.5.5	Alien and invader vegetation must not be allowed to further colonize the area, and all new alien vegetation recruitment must be sustainably eradicated or controlled.	Compliance	2	<b>Compliant:</b> Leeuwpán have contracted 'Libra Landscapes' to remove alien invasive species. An Alien and invasive species monitoring, control and eradication report was provided to the auditors.	It is recommended that the alien invasive species removal plan continue to be implemented.
3.5.6	Existing vegetation composition must be maintained or improved by maintaining the natural variability in flow fluctuations. Rehabilitated areas shall have vegetation basal cover of at least 15% at all times.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers structures at Leeuwpán's Block OI. According to the life plan of the mine, Block OL mining will only be close to the river towards 2024. A rehabilitation plan has been established. Concurrent rehabilitation is occurring at Pit OL.	No recommendations are applicable.
3.5.7	Recruitment and maintaining of a range of size classes of dominant riparian species in perennial channels must be stimulated.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers structures at Leeuwpán's Block OI. According to the life plan of the mine, Block OL mining will only be close to the river towards 2024.	No recommendations are applicable.
3.5.8	Encroachment of additional exotic species and terrestrial species in riparian zones must be discouraged.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers structures at Leeuwpán's Block OI. According to the life plan of the mine, Block OL mining will only be close to the river towards 2024.	No recommendations are applicable.
3.5.9	Accumulation of woody debris on terraces by periodic flooding must be discouraged.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers structures at Leeuwpán's Block OI. According to the life plan of the mine, Block OL mining will only be close to the river towards 2024.	No recommendations are applicable.
3.5.10	Existing flood terraces and deposition of sediments on these terraces to ensure optimum growth, spread and recruitment of these species must be maintained.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers structures at Leeuwpán's Block OI. According to the life plan of the mine, Block OL mining will only be close to the river towards 2024.	No recommendations are applicable.

3.5.11	The necessary erosion prevention mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent instream sedimentation.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers structures at Leeuwpan's Block OI. According to the life plan of the mine, Block OL mining will only be close to the river towards 2024.	No recommendations are applicable.
3.5.12	Soils that have become compacted through the water use activities must be loosened to an appropriate depth to allow seed germination.	Noted/Not Applicable	0	<b>This point has been noted:</b> Concurrent rehabilitation is being undertaken at Pit OL. Soils have been loosened to allow for the growth of natural vegetation.	No recommendations are applicable.
3.5.13	Slope/bank stabilisation measures must be implemented with a 1:3 ratio or flatter and vegetated with indigenous vegetation immediately after the shaping.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers structures at Leeuwpan's Block OI. According to the life plan of the mine, Block OL mining will only be close to the river towards 2024.	No recommendations are applicable.
3.5.14	Stockpiling of removed soil and sand must be stored outside of the 1:100 flood line or delineated riparian habitat, whichever is the greater, to prevent being washed into the river and must be covered to prevent wind and rain erosion.	Compliance	2	<b>Complaint:</b> No stockpiling of removed soil or sand is stored with the 1:100 flood line or delineated riparian habitat. All stockpiling has been authorised in this license.	No recommendations are applicable.
3.5.15	The indiscriminate use of machinery within the in stream and riparian habitat will lead to compaction of soils and vegetation and must therefore be strictly controlled.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers structures at Leeuwpan's Block OI and OL.	No recommendations are applicable.
3.5.16	The overall macro-channel structures and mosaic of cobbles and gravels must be maintained by ensuring a balance (equilibrium) between sediment deposition and sediment conveyance maintained. A natural flooding and sedimentation regime must thus be ensured as far as reasonably possible.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no streams/rivers crossings at Leeuwpan's Block OI and OL.	No recommendations are applicable.
3.5.17	As much indigenous vegetation growth as possible should be promoted within the proposed development area in order to protect soil and to reduce the percentage of the surface area which is paved.	Compliance	2	<b>Complaint:</b> Only indigenous plants are planted on site where necessary and indigenous vegetation growth is encouraged at Leeuwpan.	No recommendations are applicable.

3.5.18	Run-off from paved and hardened surfaces should be slowed down by the strategic placement of berms.	Compliance	2	<b>Complaint:</b> The velocity of run-off from paved surfaces is reduced by the implementation of the Stormwater management practices on site such as berms.	No recommendations are applicable.
3.6	<b>Biota</b>	<b>Noted/Not Applicable</b>	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
3.6.1	The Licensee must take all reasonable steps to allow movement of aquatic species, including migratory species.	Compliance	2	<b>Complaint:</b> There is currently no mining near the river. Bio-monitoring is however conducted on the Bronkhorstspuit by Clean Stream.	No recommendations are applicable.
3.6.2	All reasonable steps must be taken not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.	Compliance	2	<b>Complaint:</b> Breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota are not disturbed in the Bronkhorstspuit. There are no streams/rivers structures at Leeuwpan's Block OI and OL. Bio-monitoring is undertaken bi-annually to monitor the impact of mining of the aquatic biota. Mining is only undertaken within the identified disturbance area and in accordance to the provisions of the IWUL issued.	No recommendations are applicable.
3.6.3	The current level of diversity of biotopes and communities of animals, plants and microorganisms must be maintained.	Minor non-compliance	1	<b>Minor Non-Compliance:</b> According to the report by Clean Stream (June 2018), the Average Score Per Taxon (ASPT) has declined, indicating a decline in water quality and the loss of taxa with a requirement for good water quality.	It is recommended that Leeuwpan investigate the cause of the decrease in diversity and implement mitigation plans as soon as possible. GCS and Clean Stream are aware that Leeuwpan is not the only mine along the Bronkhorstspuit.
3.6.4	The outcome of condition 3.3.13 must be assessed together with condition 5.2 Appendix III.	Compliance	2	<b>Complaint:</b> Surface water reports are submitted monthly to the Provincial Head and groundwater reports are submitted quarterly to the Provincial Head.	No recommendations are applicable.
4	<b><u>REHABILITATION AND MANAGEMENT</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>



4.1	The Licensee must embark on a systematic long-term rehabilitation programme to restore the watercourse(s) to environmentally acceptable and sustainable conditions after completion of the activities, which must include, but not be limited to the rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem.	Compliance	2	<b>Complaint:</b> Leeuwpán has an updated Rehabilitation Strategy and Implementation Plan (RSIP) in place which looks at rehabilitation of disturbed and degraded riparian areas.	No recommendations are applicable.
4.2	All disturbed areas must be re-vegetated with an indigenous seed mix in consultation with an indigenous plant expert, ensuring that during rehabilitation only indigenous shrubs, trees and grasses are used in restoring the biodiversity. An active campaign for controlling invasive species must be implemented within disturbed zones to ensure that it does not become a conduit for the propagation and spread of invasive exotic plants.	Compliance	2	<b>Compliant:</b> A RSIP has been compiled by the mine. Concurrent rehabilitation takes place at the mine. The OL Block is being mined using concurrent rehabilitation. Re-seeding is in the process of being undertaken by Hydromulch (Pty) Ltd (Hydromulch). Progress reports on the re-seeding on these areas is submitted by Hydromulch and were provided to GCS.	No recommendations are applicable.
4.3	An active campaign for controlling invasive species must be implemented within disturbed zones to ensure that it does not become a conduit for the propagation and spread of invasive exotic plants.	Compliance	2	<b>Complaint:</b> Alien vegetation is controlled by an appointed contractor (Libra).	No recommendations are applicable.
4.4	Rehabilitation must be concurrent with construction.	Compliance	2	<b>Complaint:</b> Rehabilitation at the OL Block is concurrent. Only a box cut has been developed at Block OI.	No recommendations are applicable.
4.5	Topsoil must be stripped and redistributed.	Compliance	2	<b>Complaint:</b> Topsoil has been stripped and been used to create berms around the site.	No recommendations are applicable.
4.6	Compacted and disturbed areas must be shaped to natural forms and to follow the original contour. In general cut and fill slopes and other disturbed areas must not exceed 1:3 (v:h) ratio, it must be protected, vegetated, ripped and scarified parallel with the contour.	Noted/Not Applicable	0	<b>This point has been noted:</b> Currently, there is only a box-cut at Block OI, while Pit OL is being mined using concurrent rehabilitation. All activities are occurring in the licensed area. A rehabilitation plan has been implemented.	No recommendations are applicable.

4.7	The Provincial Head will sign a release form indicating that rehabilitation was done satisfactory according to specifications as per this licence.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpan are aware that the Provincial Head will need to sign a release form indicating that rehabilitation has been done satisfactory.	No recommendations are applicable.
4.8	A photographic record must be kept as follows and submitted with reports as set out in section 5 Appendix III:	Noted/Not Applicable	0	<b>Not Applicable.</b> Refer to the conditions below for the compliance rating.	No recommendations are applicable.
4.8.1	Dated photographs of all the sites to be impacted before construction commences;	Compliance	2	<b>Compliant:</b> Dated photographs were provided to the auditors.	No recommendations are applicable.
4.8.2	Dated photographs of all the sites during construction on a monthly basis; and	Compliance	2	<b>Compliant:</b> Dated photographs were provided to the auditors.	It is recommended that Leeuwpan continue to photograph the sites through construction.
4.8.3	Dated photographs of all the sites after completion of construction, seasonally.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpan is currently still in construction phase (Pit OI is a box-cut). Leeuwpan will ensure that dated photographs are taken seasonally after construction.	No recommendations are applicable.
4.9	Rehabilitation structures must be inspected regularly for the accumulation of debris, blockages instabilities and erosion with concomitant remedial and maintenance actions.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpan is currently still in construction and operations phase. Inspections of rehabilitated areas are/will be done regularly.	No recommendations are applicable.
4.1	The original contours must be established over the stream crossings and roads. After the backfill has subsided, the contour must follow the surrounding contours to stop irregular flows or blockage of biotic movement.	Noted/Not Applicable	0	<b>Not Applicable.</b> There are no stream crossings for this license.	No recommendations are applicable.
4.11	A Wetland Management and Rehabilitation Plan must be compiled by a wetland specialist and submitted to the Regional Head for written approval.	Compliance	2	<b>Compliant:</b> A Wetland Management and Rehabilitation Plan has been submitted with the IWULA. This report is updated on an annual basis.	No recommendations are applicable.
5	<b>MONITORING AND REPORTING</b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
5.1	A comprehensive and appropriate environmental assessment and monitoring programme (including bio-monitoring, sediment sampling and ecotoxicology) to determine the impact, change, deterioration	Compliance	2	<b>Compliant:</b> A comprehensive and appropriate environmental assessment and monitoring programme (including bio-monitoring) to determine the impact, change,	No recommendations are applicable.

	and improvement of the aquatic system associated with the activities listed under condition 1.1 Appendix III as well as compliance to these water use licence conditions must be developed and submitted to the Regional Head for written approval before commencement and must subsequently be implemented as directed. The monitoring programme shall be compared against the REC (Recommended Ecological Class) of a C within the Bronkhorstspuit River.			deterioration and improvement of the aquatic system has been developed and is being implemented as directed. A monitoring programme was submitted with the IWULA. Currently, Clean Stream are doing the bio-monitoring at Leeuwpán. Golder undertakes the surface and groundwater monitoring	
5.2	Six (6) monthly monitoring reports must be submitted to the Responsible Authority until otherwise agreed in writing with the Provincial Head.	Compliance	2	<b>Compliant:</b> Clean Stream are doing the bio-monitoring at Leeuwpán. The latest proof of submission was provided to the auditors (14 November 2018).	No recommendations are applicable.
5.3	A qualified and responsible scientist must be retained by the Licensee who must give effect to the various licence conditions and to ensure compliance thereof pertaining to all activities impeding and/or diverting flow of watercourses as well as alterations to watercourses on the properties as set out in condition 1.1.	Compliance	2	<b>Complaint:</b> Sthembiso Hinani as well as the environmental department at Leeuwpán mine will ensure the compliance of the license. It must be noted that no watercourse has been impeded/diverted for this license.	No recommendations are applicable.
5.4	The Licensee must conduct on an annual basis an internal audit on compliance with the conditions this licence. A report on the audit must be submitted to the Responsible Authority within one month of the finalisation of the audit. A qualified independent auditor must undertake this audit.	Repeat Condition	-	<b>Repeat Condition:</b> This is a repeat condition. Refer to Condition 9 of Appendix I for compliance rating. The 2019 internal audit was conducted on the 7th February 2019. The report is still in the process of being finalised. However, this condition is contradictory as an internal audit done by Leeuwpán personnel cannot be independent.	It is recommended that Leeuwpán request that this condition be amended to exclude 'a qualified independent auditor must undertake this audit'.
5.5	The audit reports must include but are not limited to:	Noted/Not Applicable	0	<b>Not Applicable:</b> Refer to the conditions below for the compliance ratings.	No recommendations are applicable.
5.5.1	Reporting in respect of the monitoring programme referred to in condition and all other reporting and compliance conditions outlined in this licence;	Compliance	2	<b>Complaint:</b> The audit report refers to the relevant monitoring reports and the compliance to conditions are also outlined.	No recommendations are applicable.

5.5.2	A record of implementation of all mitigation measures including a record of corrective actions; and	Compliance	2	<b>Compliant:</b> Non-compliances were highlighted in the internal audit and an action plan was submitted to the auditors.	It is recommended that Leeuwpan include all mitigation measures and a record of corrective actions.
5.5.3	Compensation measures for damage where mitigation measures have failed to adequately protect the in-stream and riparian habitat or any other characteristic of the watercourses.	Noted/Not Applicable	0	<b>This point has been noted:</b> No damage to in-stream and riparian habitat or any other characteristic of the watercourse has occurred.	No recommendations are applicable.
5.6	The Licensee must apply in writing to the Provincial Head for alternative reporting arrangements for which written approval must be provided.	Noted/Not Applicable	0	<b>This point has been noted:</b> The Licensee will apply in writing to the Provincial Head: Mpumalanga Operations for alternative reporting arrangements if needed.	No recommendations are applicable.
5.7	A wetland specialist must be appointed to monitor the compliance to the wetland management and rehabilitation plan and conditions in this license pertaining to impacts on wetlands and provide specialist advice for corrective actions and compile audit reports which must be submitted to the Responsible Authority.	Compliance	2	<b>Compliant:</b> Due to some of the wetlands being destroyed through mining activities, Digby Wells conducted a 'Wetland Offset and Design Strategy Update' report (dated January 2019). Wetland monitoring is also conducted at Leeuwpan.	No recommendations are applicable.
6	<b><u>OTHER WATER USERS</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
6.1	The Licensee must attempt to prevent adverse effect on other water users. All complaints must be investigated by a suitable qualified person and if investigations prove that the Licensee has impaired the rights of other water users, the Licensee must initiate suitable compensative measures.	Noted/Not Applicable	0	<b>This point is noted:</b> To date, no complaints have been received. Monthly surface water monitoring and quarterly groundwater monitoring is undertaken by the mine.	No recommendations are applicable.
7	<b><u>POLLUTION PREVENTION, INCIDENTS AND MALFUNCTIONS</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
7.1	Pollution incidents must be dealt with in accordance with Section 19 and 20 of the National Water Act.	Noted/Not Applicable	0	<b>This point has been noted:</b> Any incidents that may cause pollution will be dealt with in compliance with the Act and the WUL issued. No incidents have been reported since the previous external WUL audit.	No recommendations are applicable.

7.2	Any incident that may cause pollution of any water resource must immediately be reported to the Responsible Authority.	Noted/Not Applicable	0	<b>This point has been noted:</b> Any incidents that may cause pollution of any water resource must immediately be reported to the Responsible Authority. No incidents have been reported since the previous external WUL audit.	No recommendations are applicable.
7.3	If surface and/or groundwater pollution has occurred or may possibly occur, the Licensee must conduct, and/or appoint specialists to conduct the necessary investigations and implement additional monitoring, pollution prevention and remediation measures to the satisfaction of the Responsible Authority.	Noted/Not Applicable	0	<b>This point has been noted:</b> Monitoring of surface and groundwater resources is being undertaken by Golder. If an incident occurs, the Licensee will conduct, and/or appoint specialists to conduct the necessary investigations and implement additional monitoring, pollution prevention and remediation measures.	No recommendations are applicable.
7.4	The Licensee shall keep all records relating to the compliance or non-compliance with the conditions of this licence in good order. Such records must be made available to the Responsible Authority within 14 (fourteen) days of receipt of a written request by the Department for such records.	Compliance	2	<b>Compliant:</b> Records relating to the compliance or non-compliance with the conditions of this licence are kept in good order and will be provided to the Department if needed. Documents are kept on the server.	No recommendations are applicable.
7.5	The Licensee must keep an incident report and complaints register, which must be made available to any external auditors and the Department.	Compliance	2	<b>Compliant:</b> An incident report and a complaints register are kept on site at Leeuwpán. Incident reports are record on Leeuwpán's system and the complaints register is kept with security.	No recommendations are applicable.
8	<b><u>BUDGETARY PROVISIONS</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
8.1	The water user must ensure that there is a budget sufficient to complete and maintain the water use and for successful implementation of the rehabilitation programme as set out in this licence.	Compliance	2	<b>Complaint:</b> Leeuwpán ensures that there is sufficient budget to maintain and complete all water uses and for the implementation of rehabilitation. Financial provision is revised annually as per the requirements of the MPRDA.	No recommendations are applicable.
8.2	The Department may at any stage of the process request proof of budgetary provisions for rehabilitation and closure of project.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpán will provide the Department with proof of budgetary provisions for	No recommendations are applicable.

				rehabilitation and closure of the project if requested.	
8.3	The Licensee is fully responsible and accountable for any negative impacts on the watercourse(s) and the modelling, monitoring and mitigation thereof, until such time that no negative impacts are experienced or foreseen.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpán will take full responsibility for any negative impacts on the watercourse(s) and the modelling, monitoring and mitigation thereof.	No recommendations are applicable.
8.4	The Licensee shall submit to the Provincial Head before the 31 of March annually or immediately in the case of condition 8.4.2:	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpán will submit to the Provincial Head before the 31 of March annually or immediately if any unauthorized activities occur.	No recommendations are applicable.
8.4.1	Proof of annual public participation meetings on the conditions of this licence and (non)compliance to its conditions; and	Minor non-compliance	1	<b>Minor Non-Compliance:</b> Annual public participation meetings are undertaken by Exxaro. The last meeting was a farmer's engagement which was held on the 15 March 2019. Proof was provided to the auditors. However, the proof was not submitted to the Provincial Head before the 31st March 2019.	It is recommended that the proof is submitted to the Provincial Head as soon as possible.
8.4.2	Provide information on any unauthorized activities and the reasons therefore.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpán will provide information regarding any unauthorized activities that occur.	No recommendations are applicable.
<b>APPENDIX IV</b>		Noted / Not Applicable	0		
<b>Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource</b>		Noted / Not Applicable	0		
<b>1</b>	<b><u>CONSTRUCTION AND OPERATION</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
1.1	The Licensee shall carry out and complete all the activities, including the construction and operation of the Pollution Control Dam according to the Report and according to the final plans Technical Design Report as approved by the Provincial Head. (refer to Table 3 on the IWUL) for the Geographical	Noted/Not Applicable	0	<b>This point has been noted:</b> The only activity currently being conducted at Leeuwpán in terms of Section 21(g) is dust suppression. The remaining activities are yet to be constructed. The PCD will not be constructed, instead the water is being pumped to the main PCD situated on the property Kenbar. It must be noted that the	It is recommended that Leeuwpán notify the Department that the PCD will not be constructed, instead the main PCD on the Kenbar property will be used.

	positions of the waste water management facilities			new plant and infrastructure will no longer be constructed.	
1.2	The construction of the Pollution Control Dam must be carried out under the supervision of a professional Civil Engineer, registered under the Engineering Profession of South Africa Act, 1990 (Act 114 of 1990), as approved by the designer.	Noted/Not Applicable	0	<b>Not Applicable.</b> The PCD will no longer be constructed but rather the water will be pumped to the existing main PCD on the property Kenbar.	It is recommended that Leeuwpan request for this condition to be amended.
1.3	Within 30 days after the completion of the activities referred here in accordance with the relevant provisions of this licence, the Licensee shall in writing, under reference, 16/2/7/B100/C27, inform the Provincial Head thereof. This shall be accompanied by a signature of approval from the designer referred to above that the construction was done according to the design plans referred to in the Report.	Noted/Not Applicable	0	<b>Not Applicable:</b> The PCD and the plant area are no longer going to be constructed.	No recommendations are applicable.
1.4	The Licensee shall as well submit a set of as-built drawings to the Provincial Head after the completion of the Pollution Control Dam.	Noted/Not Applicable	0	<b>Not Applicable.</b> The PCD will no longer be constructed but rather the water will be pumped to the existing main PCD on the property Kenbar.	It is recommended that Leeuwpan request for this condition to be amended.
1.5	The Pollution Control Dam shall be operated and maintained to have a minimum freeboard of 0.8 metres above full supply level and all other water systems related thereto shall be operated in such a manner that it is at all times capable of handling the 1:50 year flood-event on top of its mean operating level.	Noted/Not Applicable	0	<b>Not Applicable.</b> The PCD will no longer be constructed but rather the water will be pumped to the existing main PCD on the property Kenbar.	It is recommended that Leeuwpan request for this condition to be amended.
1.6	The Licensee shall use acknowledged methods for sampling and the date, time and sampler must be indicated for each sample.	Compliance	2	<b>Compliant:</b> The Licensee uses acknowledged methods for sampling and the date, time for each sample. Golder currently undertakes water monitoring on site.	No recommendations are applicable.
1.7	Flow metering devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than once in two years. Calibration certificates shall be available for inspection by the	Noted/Not Applicable	0	<b>Not Applicable:</b> The new plant and infrastructure will no longer be constructed.	No recommendations are applicable.



	Provincial Head or his representative upon request.				
2	<b><u>STORAGE OF WATER CONTAINING WASTE</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
2.1	The Licensee is authorised to store water constraining waste in waste management facilities listed in table 6. (refer to Table 4 on the IWUL) for the Waste management facility (pollution control dam).	Noted/Not Applicable	0	<b>Not Applicable.</b> The PCD will no longer be constructed but rather the water will be pumped to the existing main PCD on the property Kenbar. It must be noted that there is no Table 6 in the IWUL. It has been assumed that the Department is referring to Table 4.	It is recommended that Leeuwpan request clarity on this condition as well as request for this condition to be amended.
3	<b><u>DUST SUPPRESSION</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
3.1	This Licence authorises the use of seven thousand six hundred and fifty cubic metres (m3) of wastewater per annum from the pollution control dam for dust suppression on Moabsvelde 248IR Portion 2.	Minor non-compliance	1	<b>Minor Non-Compliance:</b> Wastewater for dust suppression is being taken from the main PCD as the PCD licenced in this licenced is not being built. The licence has authorised 7650m <sup>3</sup> for dust suppression, however, 9316m <sup>3</sup> for the year 2018 was used.	It is recommended that Leeuwpan apply for this condition to be amended as the PCD is not being constructed. It is also recommended that Leeuwpan do not exceed the authorised limit for dust suppression.
3.2	No excessive dust suppression that leads to saturated conditions and no dust suppression during wet periods.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpan will ensure that no excessive dust suppression will lead to saturated conditions and that no dust suppression will take place during wet periods.	No recommendations are applicable.
3.3	An annual soil chemistry map must be compiled and submitted, with a report, to the Provincial Head. The soil chemistry map shall cover the areas covered by the dust suppression and map concentrations of pH, Electrical Conductivity and Sodium. This map must be interpreted by a professional soil scientist and recommendations and conclusions must be included in a report.	Compliance	2	<b>Compliant:</b> A soil quality monitoring report for the OI Pit was conducted by Golder in March 2019. pH, EC and sodium were measured. However, the report does not include a map of these concentrations.	It is recommended that a soil chemistry map be included in the next soil report.
4	<b><u>QUALITY OF WASTE WATER TO BE DISPOSED OF THE WASTE WASTER CONTAINMENT FACILITY</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>



	The quality of wastewater disposed of on the waste water containment facility shall not exceed the following limits as specified in Table 5 (refer to Table 5 on the IWUL).	Noted/Not Applicable	0	<b>Not Applicable.</b> The PCD will no longer be constructed but rather the water will be pumped to the existing main PCD on the property Kenbar.	It is recommended that Leeuwpan apply for this condition to be amended as the PCD is not being constructed.
<b>5</b>	<b><u>MONITORING</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
<b>5.1</b>	<b>Monitoring of waste water</b>	<b>Noted/Not Applicable</b>	<b>0</b>	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
5.1.1.	The Licensee shall monitor the water quality of the treated water continuously with online water quality monitoring of the key variables as indicated in Table 7 (refer to Table 7 on the IWUL).	Noted/Not Applicable	0	<b>Not Applicable.</b> No water at Leeuwpan is being treated. In addition, Table 7 in the license does not list water quality variables.	It is recommended that Leeuwpan request clarity from the department as well as amend this condition if no water is being treated.
<b>5.2</b>	<b>Surface Water Quality</b>	<b>Noted/Not Applicable</b>	<b>0</b>	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
5.2.1	The Licensee shall submit within one month of the date of the issuance of the licence, a surface water quality monitoring programme, with the GPS co-ordinates and the criteria used in the selection of the water monitoring points.	Compliance	2	<b>Compliant:</b> A surface water quality monitoring programme was submitted with the IWULA.	No recommendations are applicable.
5.2.2	The location of additional monitoring points, which may from time to time be specified by the Provincial Head, shall be communicated in writing to the Licensee and this communication shall be regarded as part of the licence.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpan is aware that the Provincial Head may specify additional monitoring points.	No recommendations are applicable.
5.2.3	Monitoring for quality shall only be carried out at the monitoring points listed in below:	Compliance	2	<b>Compliant:</b> Monitoring is being undertaken at the specified monitoring points. It must be noted that there are no monitoring points listed below in the IWUL.	It is recommended that Leeuwpan request clarity from the Department.
5.2.4	The following variables (constituents) shall be included in the surface monitoring programme: pH, EC, Cl, SO <sub>4</sub> , F, Na, K, Ca, Mg, Al, Fe, Mn, NO <sub>2</sub> , TDS and Total Hardness	Compliance	2	<b>Compliant:</b> The listed variables are included in Golder's reports.	No recommendations are applicable
<b>5.3</b>	<b>Groundwater Quality</b>	<b>Noted/Not Applicable</b>	<b>0</b>	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>

5.3.1	The Licensee shall submit within one month of the date of the issuance of this licence, a ground water quality monitoring programme which must provide the detailed criteria followed in the establishment of the groundwater monitoring point.	Compliance	2	<b>Compliant:</b> A groundwater quality monitoring programme was submitted with the IWULA.	No recommendations are applicable.
6	<b><u>STORM WATER MANAGEMENT</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
6.1	Storm water leaving the Licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.	Repeat Condition	-	<b>Repeat Condition:</b> This is a repeat condition. Refer to Condition 3.1.5 of Appendix III for compliance rating. No stormwater is leaving the premises. Stormwater berms have been established around the site to prevent stormwater leaving.	No recommendations are applicable.
6.2	Increase runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the stream.	Repeat Condition	-	<b>Repeat Condition:</b> This is a repeat condition. Refer to Condition 3.1.2 of Appendix III for compliance rating. There are no streams in the area of this license. The license has authorised the mining through a wetland and the new plant and relevant infrastructure (not being established) would have been within 500m of a wetland.	No recommendations are applicable.
6.3	Storm water shall be diverted from the site and roads and shall be managed in such a manner as to disperse runoff and concentrating the storm-water flow.	Repeat Condition	-	<b>Repeat Condition:</b> This is a repeat condition. Refer to Condition 3.1.3 of Appendix III for compliance rating. The initial box cut material was used for the development of the stormwater management berms. Water is diverted away. No concentration of water was observed.	No recommendations are applicable.
6.4	Where necessary works must be constructed to attenuate the velocity of any storm-water discharge and to protect the banks of the affected watercourses.	Noted/Not Applicable	0	<b>Not Applicable:</b> No water is being discharged. There are no streams/rivers in the area of this license.	No recommendations are applicable.
6.5	Storm water control works must be constructed, operated and maintained in a sustainable manner throughout the impacted area.	Compliance	2	<b>Compliant:</b> Stormwater management measures observed during the audit were noted to be	No recommendations are applicable.

				constructed, operated and maintained in a sustainable manner.	
6.6	Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the streams.	Repeat Condition	-	<b>Repeat Condition:</b> This is a repeat condition. Refer to Condition 3.1.2 of Appendix III for compliance rating. There are no streams in the area of this license. The license has authorised the mining through a wetland and the new plant and relevant infrastructure (not being established) would have been within 500m of a wetland.	No recommendations are applicable.
6.7	All storm water that would naturally run across the pollution areas shall be diverted via channels and trapezoidal drains designed to contain the 1:50 year flood.	Compliance	2	<b>Compliant:</b> Stormwater management measures were designed according to the Stormwater Management Plan which has been designed to contain the 1:50 year flood.	No recommendations are applicable.
6.8	The polluted storm water system shall be designed and implemented to provide suitable routing and pumping capacity for contaminated storm water from the individual facilities to the respective storm water dams in accordance with the design specifications as contained in the Technical Design Report.	Compliance	2	<b>Compliant:</b> All storm water collected on site is considered dirty and is directed to the PCDs on the mine for re-use in the mining activities. Suitable routing and pumping capacity for contaminated storm water from the individual facilities to the respective PCDs has been constructed and are in operation.	No recommendations are applicable.
7	<b><u>ACCESS CONTROL</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
7.1	Strict access procedures must be followed in order to gain access to the property. Access to the Pollution Control Dam must be limited to authorised employees of the Licensee and their Contractors only.	Compliance	2	<b>Compliant:</b> Access to the mine is limited to authorised personnel. Visitors must undergo induction and present proof of identification. The mine complex is fenced off and access is gained through the main entrance gate once a permit for authorisation has been granted. Security is present on the mine complex.	No recommendations are applicable.

7.2	Notices prohibiting unauthorised persons from entering the areas referred to in condition 2.1 of Appendix III, as well as internationally acceptable signs indicating the risks involved in case of an unauthorised entry must be displayed along the boundary fence of these areas.	Repeat Condition	-	<b>Repeat Condition:</b> This is a repeat condition. Refer to Condition 9 of Appendix II for compliance rating. All pits and dams are within the mine boundary which is fenced off. There is also security present at the mine and the entrance gate. Signs of restricted access are present at all the pits. The dams are fenced off and the relevant notices of unauthorised entry are present along the boundary fences of these areas.	No recommendations are applicable.
7.3	The Licensee must take all reasonable steps to maintain service roads in a condition which ensures unimpeded access to the mine residue facility for vehicles involved in closure	Noted/Not Applicable	0	<b>Not Applicable.</b> Leeuwpán is still in the operational phase. Block OI in currently a box-cut. The Licensee will ensure they take all reasonable steps to maintain service roads in a condition which ensures unimpeded access to the mine residue facility.	No recommendations are applicable.
7.4	The Licensee must ensure that all entrance gates are manned during the hours of operation/closure construction and locked outside the hours of operational/closure construction.	Compliance	2	<b>Compliant:</b> Entrance gates at Leeuwpán are manned and locked when necessary.	No recommendations are applicable.
8	<b><u>CONTINGENCIES</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
8.1	Accurate and up-to-date records shall be kept of all system malfunctions resulting in non-compliance with the requirements of this licence. The records shall be available for inspection by the Provincial Head upon request. Such malfunctions shall be tabulated under the following headings with a full explanation of all the contributory circumstances:	Compliance	2	<b>Compliant:</b> Malfunctions are reported on their internal server system and associated job cards are created. Once corrected these malfunctions are removed from the system. Where non-compliances are a result of a malfunction these records are kept and ready for inspection when required. There have been no malfunctions since the previous external IWUL audit.	No recommendations are applicable.
8.1.1	operating errors;	Noted/Not Applicable	0	<b>This point has been noted:</b> There have been no operating errors since the previous IWUL audit.	No recommendations are applicable.

8.1.2	mechanical failures (including design, installation or maintenance);	Noted/Not Applicable	0	<b>This point has been noted:</b> There have been no mechanical failures since the previous IWUL audit.	No recommendations are applicable.
8.1.3.	environmental factors (e.g. flood);	Noted/Not Applicable	0	<b>This point has been noted:</b> There have been no environmental factors resulting in non-compliance since the previous IWUL audit.	No recommendations are applicable.
8.1.4	loss of supply services (e.g. power failure); and	Noted/Not Applicable	0	<b>This point has been noted:</b> There have been no loss of supply services since the previous IWUL audit.	No recommendations are applicable.
8.1.5	other causes.	Noted/Not Applicable	0	<b>This point has been noted:</b> There have been no other causes resulting on non-compliance since the previous IWUL audit.	No recommendations are applicable.
8.2.	The Licensee must, within 24 hours, notify the Provincial Head of the occurrence or potential occurrence of any incident which has the potential to cause, or has caused water pollution, pollution of the environment, health risks or which is a contravention of the licence conditions.	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee is aware that an incident which has the potential to cause, or has caused water pollution, pollution of the environment, health risks or which is a contravention of the license conditions must be reported in 24 hours to the Regional Head. No such incident has occurred since the previous IWUL audit.	No recommendations are applicable.
8.3 8.3.1 8.3.2 8.3.3	The Licensee must, within 14 days, or a shorter period of time, as specified by the Provincial Head, from the occurrence or detection of any incident referred above, submit an action plan, which must include a detailed time schedule, to the satisfaction of the Provincial Head of measures taken to:- correct the impacts resulting from the incident; prevent the incident from causing any further impacts; prevent a recurrence of a similar incident.	Noted/Not Applicable	0	<b>This point has been noted:</b> An incident register is kept on site. The licensee is aware that from the occurrence or detection of any incident referred to above, submit an action plan, which must include a detailed time schedule, to the satisfaction of the Regional Head. This should be submitted within 14 days.	No recommendations are applicable.
9	<b>REPORTING</b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>

9.1	The Licensee shall update the water balance annually and calculate the loads of waste emanating from the activities. The Licensee shall determine the contribution of their activities to the mass balance for the water resource and must furthermore co-operate with other water users in the catchment to determine the mass balance for the water resource reserve compliance point.	Compliance	2	<b>Compliant:</b> The water balance and salt balance has been updated. The 2018 water balance update was submitted with the 2018 IWWMP update. The licensee has committed to co-operate with other water users in the catchment to determine the mass balance for the water resource reserve compliance point.	No recommendations are applicable.
9.2	The Licensee shall submit the results of analysis for the monitoring requirements to the Provincial Head on a quarterly basis under Reference number 16/2/7/B100/C27.	Compliance	2	<b>Compliant:</b> Water monitoring reports are submitted to DWS on a quarterly basis as required. Proof of submissions and/or acknowledgement of receipt from DWS was provided to GCS.	No recommendations are applicable.
9.3	The Licensee shall submit the nature and the quality of the waste disposed into the following dam.	Noted/Not Applicable	0	<b>Not Applicable.</b> Refer to the conditions below for the compliance rating.	No recommendations are applicable.
	i. Pollution control dam	Noted/Not Applicable	0	<b>Not Applicable.</b> The PCD will not be constructed. The main PCD will be used instead.	No recommendations are applicable.
	ii. Dirty Water Dam for Stock Yard	Noted/Not Applicable	0	<b>Not Applicable.</b> The dirty water dam for stock yard has not been constructed yet. However, once constructed, the dam will form part of the monitoring programme.	No recommendations are applicable.
	iii. Stormwater Dam	Noted/Not Applicable	0	<b>Not Applicable.</b> The stormwater dam has not been constructed yet. However, once constructed, the dam will form part of the monitoring programme.	No recommendations are applicable.
	iv. Pit OL	Noted/Not Applicable	0	<b>Not Applicable.</b> No water is being stored in Pit OL.	No recommendations are applicable.
10	<b>AUDITING</b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
10.1	The Licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Provincial Head within one month of finalisation of the report and shall be	Repeat Condition	-	<b>Repeat Condition:</b> This is a repeat condition. Refer to Condition 9 of Appendix I for compliance rating. The 2019 internal audit was conducted on the 7th February 2019. The	No recommendations are applicable.

	made available to an external auditor should the need arise.			report is still in the process of being finalised.	
10.2	The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit must be conducted within 3 (three) months of the date this license was issued and a report on the audit shall be submitted to the Provincial Head within one month of finalisation of the report.	Repeat Condition	-	This is a repeat condition. Refer to Condition 10 of Appendix I for compliance rating. GCS Water and Environment (Pty) Ltd (GCS) have been appointed to conduct the 2019 external IWUL Audit of which the site visit was conducted on 13 March 2019. This report serves as the 2019 IWUL audit.	No recommendations are applicable
11	<b><u>INTEGRATED WATER AND WASTE MANAGEMENT</u></b>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
11.1.	The Licensee must prepare an Integrated Water and Waste Management Plan (IWWMP), which must together with the Rehabilitation Strategy and Implementation Programme (RSIP), be submitted to the Provincial Head for approval within one (1) year from the date of issuance of this licence.	Compliance	2	<b>Compliant:</b> An IWWMP was compiled and submitted as part of the original IWULA. An RSIP was also compiled as per this condition.	No recommendations are applicable.
	The IWWMP shall thereafter be updated and submitted to the Provincial Head for approval, annually.	Compliance	2	<b>Compliant:</b> The IWWMP was updated in December 2018 by GCS. Proof of submission to DWS was provided to the GCS auditors.	No recommendations are applicable.
11.3.	The Licensee must, at least 180 days prior to the intended closure of any facility, or any portion thereof, notify the Provincial Head of such intention and submit any final amendments to the IWWMP and RSIP as well as a final Closure Plan, for approval.	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee is aware that, at least 180 days prior to the intended closure of any facility, or any portion thereof, the Regional Head should be notified. Any final amendments to the IWWMP and RSIP as well as a final Closure Plan, should also be submitted for approval.	No recommendations are applicable.
11.4	The Licensee shall make full financial provision for all investigations, designs, construction, operation and maintenance for a water treatment plant should it become a requirement as a long-term water management strategy.	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee is aware of this condition should it become a requirement.	No recommendations are applicable.
<b>APPENDIX V</b>		Noted / Not Applicable	0		

Section 21 (j) of the Act: Removing, discharging or disposing of water found underground if it is necessary for the effective continuation of an activity or for the safety of people		Noted / Not Applicable	0		
	<u>General</u>	Noted / Not Applicable	0	<b>Not Applicable.</b>	<b>No recommendations are applicable.</b>
1	The licensee is authorised to remove water found underground as stipulated in table 7 (refer to Table 7 on the IWUL).	Moderate non-compliance	-1	<b>Moderate Non-Compliance:</b> No flow meters have been installed at Pit OI and therefore, no volumes for dewatering could be established. Leeuwpan mine personnel explained that they are in the process of establishing a pipeline strategy which will be implemented this year.	It is recommended that a flow meter be implemented as soon as possible to record the amount of water being dewatered at the OI Pit.
2	The Licensee is authorised to dispose the groundwater into a pollution control dam on farm Moabsvelden 248IR Portion 2 and 16	Minor non-compliance	1	<b>Minor Non-Compliance:</b> The groundwater from pit OI is not being disposed of into the PCD on farm Moabsvelden 248IR Portion 2 and 16. Instead, the water is being transferred to a PCD on Kenbar 257IR.	It is recommended that Leeuwpan apply for the location of this PCD to be amended as well as inform the Department that they will be transferring the water to the PCD located on the Kenbar property.
3	The licensee shall provide any water user whose water supply is impacted by the water use with potable water.	Noted/Not Applicable	0	<b>This point has been noted:</b> Leeuwpan is readily available to supply any water user whose water supply is impacted by the water use with potable water. No complaints have been received since the previous audit.	No recommendations are applicable.
4	The quantity of water removed from underground must be metered and recorded on a daily basis.	Moderate non-compliance	-1	<b>Moderate Non-Compliance:</b> No flow meters have been installed at Pit OI and therefore, no daily quantities can be measured and recorded. Leeuwpan mine personnel explained that they are in the process of establishing a pipeline strategy which will be implemented this year.	It is recommended that a flow meter be established as soon as possible to record the amount of water being dewatered at the OI Pit.
5	The groundwater levels shall be monitored every six months (once in the beginning of the dry season and once in the beginning of the wet season).	Compliance	2	<b>Compliant:</b> The groundwater levels form part of monitoring report as conducted by Golder Associates on a quarterly basis.	No recommendations are applicable.
6	Self registering flow meters must be installed in the delivery lines at easily accessible positions near the dewatering points.	Moderate non-compliance	-1	<b>Moderate Non-Compliance:</b> No flow meters have been installed at Pit OI.	It is recommended that a flow meter be established as soon as possible to record the amount of water being dewatered at the OI Pit.





7	The flow metering devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than once in two years. Calibration certificates shall be available for inspection by the Provincial Head or his/her representative upon request.	Noted/Not Applicable	0	<b>Not Applicable.</b> No flow meters have been installed at Pit OI, therefore, measuring devices cannot be maintained as of yet. Leeuwpan will be installing measuring devices in 2019.	No recommendations are applicable.
8	Calibration certificates in respect of the pumps must be submitted to the Provincial Head after installation thereof and thereafter at intervals of two years.	Noted/Not Applicable	0	<b>Not Applicable.</b> No flow meters have been installed at Pit OI, therefore, calibration certificates cannot be provided. Leeuwpan will be installing measuring devices in 2019.	No recommendations are applicable.
9	The date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis.	Compliance	2	<b>Compliant:</b> The date, time and monitoring point in respect of each sample taken is recorded together with the results of the analysis and presented in the monitoring reports.	No recommendations are applicable.
10	Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards, in terms of the Standards Act, 1982 (Act 30 of 1982).	Compliance	2	<b>Compliant:</b> Analysis is carried out in accordance with methods prescribed by and obtainable from the South African National Standards (SANS), in terms of the Standards Act, 1982 (Act 30 of 1982).	No recommendations are applicable.
11	The methods of analysis shall not be changed without prior notification to the licensee and written approval by the Minister or his/her delegated nominee.	Noted/Not Applicable	0	<b>This point has been noted:</b> The methods of analysis will not be changed without prior notification to and written approval by the Minister.	No recommendations are applicable.
12 12.1 12.2 12.3	The Regional must be informed of any incident that may lead to under- groundwater being disposed of contrary to the provisions of this license, by submitting a report containing the following information: nature of the incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc); actions taken to rectify the situation and to prevent pollution or any other damage to the environment; and measures to be taken to prevent re-occurrence of any similar incident.	Noted/Not Applicable	0	<b>This point has been noted:</b> The licensee will inform the Regional Head of any incident that may lead to under-groundwater being disposed of contrary to the provisions of the licence, by submitting a report. No incident has occurred at Leeuwpan.	No recommendations are applicable.



13	The licensee shall follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the underground water removal system.	Compliance	2	<b>Compliant:</b> Maintenance is conducted on an as needed basis. However, job cards have been created for maintenance particularly with regards to the Storm Water Management. Safety procedures are followed by employees. Appropriate notifications are displayed throughout the mine to ensure safe practices during operation.	No recommendations are applicable.
1.4	Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.	Compliance	2	<b>Compliant:</b> Back up pumps are provided at the relevant locations i.e. pits. The pumps at the pits are diesel operated thereby reducing the reliance on electricity. Generators are provided on site for offices, main areas, plant and workshop in the event of electricity failure. Maintenance is conducted at the mine.	No recommendations are applicable.

## 4 PHOTO LOG

Refer to Table 4.1 for a photographic log of the most significant photographs taken on site during the site visit.

**Table 4.1 Photographic Log**

OBSERVATION	PHOTOGRAPHIC EVIDENCE
<b>Pit</b>	
The box-cut for Pit OI.	
<b>Rehabilitated Areas</b>	
Vegetation is observed and encouraged around the top of the OI box-cut.	
<b>Storm Water Management</b>	

OBSERVATION	PHOTOGRAPHIC EVIDENCE
<p>Berms were observed throughout the site.</p>	
Pollution Control Dam	
<p>The existing main PCD where water is being directed to from Block OI and OL.</p>	

## 5 CONCLUSION AND SUMMARY OF FINDINGS

From the auditing findings, it can be concluded that Leeuwpan is overall compliant (85% compliant) with their IWUL. Most conditions have been met or are not applicable, while other conditions have been partially met. Where non-compliances were recorded, the auditor contextualised the non-compliance in terms of the intensity. This equates to an objective view of the seriousness of the non-compliance and also then leads to recommendations where minor to moderate non-compliances have been observed.

From the audit findings, it is the opinion of the auditor that Leeuwpan give attention to the following identified non-compliances:

**Quantity of water S21(a) and (j):**

- No flow meters have been installed at Pit OI and therefore, no volumes for dewatering could be established. A record of water taken can therefore also not be compiled. Leeuwpan mine personnel indicated that they are in the process of establishing a pipeline strategy which will be implemented this year in which flow meters will be installed.
  - It is recommended that flow meters be implemented as soon as possible to record the amount of water being dewatered at the OI Pit.
- The groundwater from pit OI is not being disposed of into the PCD on farm Moabsvelden 248IR Portion 2 and 16. Instead, the water is being transferred to a PCD on Kenbar 257IR.
  - It is recommended that Leeuwpan apply for the location of this PCD to be amended as well as inform the Department that they will be transferring the water to the PCD located on the Kenbar property.
- Wastewater for dust suppression is being taken from the main PCD as the PCD licenced in this licenced is not being built. The licence has authorised 7650m<sup>3</sup> for dust suppression, however, 9316m<sup>3</sup> for the year 2018 was used.
  - It is recommended that Leeuwpan apply for this condition to be amended as the PCD is not being constructed. It is also recommended that Leeuwpan do not exceeded the authorised limit for dust suppression.

**Quality of water:**

- According to Golder's quarterly water monitoring report (December 2018), the following constituents increased at downstream sites compared to upstream at least once during the reporting period: total dissolved solids, electrical conductivity, sulphate (exceeded IWUL limit), sodium, calcium, magnesium (exceeded IWUL limits), total hardness, total phosphorus E. coli (exceeded IWUL), sodium absorption ratio and dissolved oxygen (a positive sign) increased downstream.
  - It is recommended that Leeuwpan investigate the cause of the decrease in water quality to downstream users as well as the implementation of appropriate mitigation measures as soon as possible.
- Golder conducts the surface water monitoring monthly and the groundwater quarterly. January's 2018 report includes the test for all trace metal elements, however, July's 2018 report did not test for such.
  - It is recommended that Leeuwpan test all surface and groundwater monitoring points for a full spectrum of heavy metals twice a year.

**Biota (Bronkhorstspuit):**

- According to the report by Clean Stream (June 2018), the Average Score Per Taxon (ASPT) has declined, indicating a decline in water quality and the loss of taxa with a requirement for good water quality.

- It is recommended that Leeuwpan investigate the cause of the decrease in diversity and implement mitigation plans as soon as possible. GCS and Clean Stream are aware that Leeuwpan is not the only mine along the Bronkhorstspuit.

**Monitoring and reporting:**

- Non-compliances were highlighted in the internal audit, however, corrective actions for the non-compliances were not listed.
  - It is recommended that Leeuwpan include all mitigation measures and a record of corrective actions.
- Annual public participation meetings are undertaken by Exxaro. The last meeting was a farmer's engagement which was held on the 15 March 2019. Proof was provided to the auditors. However, the proof was not submitted to the Provincial Head before the 31st March 2019.
  - It is recommended that the proof is submitted to the Provincial Head as soon as possible.