Beeshoek Iron Ore Mine

2019 Performance Assessment in terms of the National Water Act, 1998

Report Purpose

Providing the client and Regulatory Authority with an understanding of the environmental compliance in terms of the all Environmental Authorisations in terms of the National Water Act, 1998 (NWA)

Report Status

Final Version 2

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With more than 17 years' experience in environmental management and the consulting industry, she follows a methodical and practical approach in attending to environmental problems and identifying environmental solutions throughout the planning, initiation, operation and decommissioning or closure of projects.

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1 INTRODUCTION AND TERMS OF REFERENCE

1.1 Terms of Reference

In terms of Beeshoek's legal requirements an annual Performance Assessment is required in terms of the following approvals:

- National Environmental Management Act, 1998 (Act No. 107 of 1998);
- Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA); and
- National Water Act, 1998 (Act No. 36 of 1998) (NWA).

Condition 8.1 on page 3 of the Water Use Licence (WUL), 2018, states that "This Licence supersedes or replaces water use licence granted to Assmang (Pty) Ltd: Beeshoek Iron Ore Mine, licence number: 10/D73A/ABGJ/2592, dated 1 December 2014." For this reason, the 2019 audit on the WUL has been conducted based on the requirements of the newly issued WUL, 2018. Condition 11 of the WUL, 2018 states that: "The Licensee must appoint an independent external auditor to conduct a biennial audit on compliance with the conditions of this Licence. The first audit must be conducted within three (3) months of the date of Licence issuance and a report on the audit must be submitted to the Provincial Head within one (2) month of finalisation of the report."

1.2 Introduction

The Iron Ore Division of Assmang Ltd (hereafter referred to as Assmang) is made up of the Beeshoek and the Khumani Iron Ore Mines, both located in the Northern Cape Province.

Beeshoek Mine (hereafter referred to as Beeshoek, or the mine) is located approximately 7km west of the town of Postmasburg. The mine falls under the jurisdiction of the Tsantsabane Local Municipality, which is an administrative area in the ZF Mgcawu District Municipality. The mining area is situated on the properties Beeshoek and Olynfontein in the Kuruman.

The R385 roadway, as well as the Sishen–Saldanha railway line, also known as the Ore Export Line (OREX) Railway Line, traverse the Mine. The overall area is characterised by intensive mining development. Various servitudes traverse the Mine, which include roads, telephone lines and electricity lines.

Assmang is the holder of the new order rights in terms of the Mineral and Petroleum Resources Development Act, Act No. 28 of 2002 (hereafter referred to as the MPRDA) in respect of high-grade hematite iron ore deposits at Beeshoek on the farms Beesthoek and Olynfontein. The mining method currently entails an opencast mining operation, which consists of three (3) opencast pits. The current resources of the mine are 98 million tonnes with a reserve of 46 million tonnes.

Mining at Beeshoek was established in 1964 with a basic hand sorting operation. In 1975 a full washing and screening plant was installed. Because of increased production, Beeshoek South, a southern extension of Beeshoek Mine, was commissioned during 1999 on the farms of Beeshoek and Olynfontein.

Broadly, Beeshoek Mine can be categorised as follows:

- North Mine: This area comprises active as well as historical mining areas. Several active opencast pits and mine residue dumps of various categories are located within this area. The area also includes the iron ore beneficiation plant.
- Housing (almost fully decommissioned and demolished) and administration: This area comprises the older housing on the Mine, as well as the offices and related administration buildings. This area is

separated from the north eastern mining area by means of the railway line running from Postmasburg to Saldanha.

- Village and recreational area (fully demolished); and
- South Mine: This area includes the latest mining developments comprising large opencast pits and associated waste rock dumps. This area also includes a crushing and screening area as pre-preparation of the Run of Mine (ROM) iron ore before being routed by overland conveyor to the iron ore beneficiation plant located within the north eastern mining area.

Beeshoek is certified for Safety, Health, Environment and Quality (SHEQ) management systems according to ISO 14001, OHSAS 18001 and ISO 9001.

The Mine is operating with all required environmental authorisations in terms of the:

- National Environmental Management Act, Act No. 107 of 1998 (hereafter referred to as the NEMA), also the original approval in terms of the Environment Conservation Act, Act No. 73 of 1989 (hereafter referred to as the ECA):
  - Licence 1 (in terms of ECA)
    - Licence Ref.: Permit 12/9/11/P49
    - Purpose: Landfill site.
    - Date: 30 October 2008
  - Licence 2
    - Licence Ref.: Permit 17/2011
    - Purpose: Road Diversion
    - Date: 3 March 2011
  - Licence 3
    - Licence Ref.: Permit 12/2014
    - Purpose: BF Waste Rock Dump (WRD) (now the Village WRD)
    - Date 7 March 2014
  - Licence 4
    - Licence Ref: Permit 20/2015
    - Purpose: WRD Village Haul Road
    - Date: 3 June 2015
  - Licence 5
    - Licence Ref: Permit NC 30/5/1/2/3/2/1/223 MR
    - Purpose: Storm Water Dam North Upgrade
    - Date: 10 March 2017
- MPRDA:
  - Environmental Management Programme (EMP) 1 (pre-alignment, and used for information purposes – no longer audited):
    - EMP Report
    - Purpose: Beeshoek Mining Operation
    - Date: August 2004
  - EMP 2:
    - Licence Ref.: NC30/5/1/2/3/2/1/223EM
    - Purpose: EMP Alignment for activities on Beeshoek
    - Date: 7 June 2010
- National Water Act, Act No. 36 of 1998 (hereafter referred to as the NWA):
  - Licence Ref.: 10/D73A/ABGJ/2592EM
  - Purpose: Licence for all Section 21 Water Uses and Government Notice No. 704 (GN704) triggered activities (such as backfilling)
  - Date: 21 August 2018

1.3 Catchment Description

Beeshoek Mine is located within quaternary catchment D73A, which measures 3 238km² in size. The overall catchment is part of a large endoreic area. The main drainage feature within this area is the Groenwater Spruit, which has a catchment of approximately 1 000km². The Groenwater Spruit discharges into a major local depression at Vleiputs.

The local catchment upslope of the mine is small, since it is located near a range of koppies which forms the water shed between the Groenwater Spruit and the unnamed adjacent catchment. The general drainage starts off in a westerly direction, from the koppie to the north and east of the mine's northern workings. From the North Mine, the drainage is in a south westerly direction, before turning south at the southern portion of the South Mine area.

The above, combined with the sandy soils that are prevalent in the area, should result in high infiltration with limited runoff during normal rainfall events. No distinct drainage paths exist, but some minor preferential pathways are evident, and runoff could be concentrated in these pathways.

2 COMPLIANCE ASSESSMENT METHODOLOGY

2.1 Objective of the Performance Assessment

The objectives of this WUL Performance Assessment are therefore to:

- Provide feedback regarding the Licence Holder's understanding in terms of the conditions of the newly issued WUL, 2018;
- Provide documentation concerning compliance in terms of the conditions as contained in the approved WUL, 2018;
- Provide documentation concerning compliance in terms of the conditions as contained in the permits and licences of the legislation listed in Section 1.3;
- Provide the management of the mine, the Department of Water and Sanitation (DWS), Department of Mineral Resources (DMR), Department of Environmental Affairs (DEA) (if required) and Northern Cape Department of Environment and Nature Conservation (NCDENC) with feedback on the status quo of environmental compliance on site; and
- Supply a basis for the initiation of corrective action where necessary or appropriate as identified through the assessment.

2.2 Methodology

The following methodology was implemented to assess the compliance of Beeshoek Mine to its WUL Conditions:

- Gathering of Information;
- Checklist Formulation;
- Site Visit and Staff engagements;
- Compliance Assessment; and
- Feedback.

2.2.1 Gathering of Information

The most relevant documents were reviewed. Budgetary constraints make it impossible to review absolutely all the documents and spending days on site. The audit was conducted by doing numerous spot-checks on site as well as assessing licence or permit conditions. The external audit included discussions with the responsible environmental and engineering staff at the Operations.

Information required for the Performance Assessment Report was provided by Ms. Crystal Vries during the site visit. The following documents were reviewed by EnviroGistics (Pty) Ltd and consulted during the assessment:

- Permits:
  - Permit 17/2011 for the Road Diversion
  - Permit 12/2014 for the BF WRD (Village WRD)
  - Permit 20/2015 for the Village Haul Road
  - EMP Alignment in terms of the MPRDA and associated Record of Decision (ROD) NC 30/5/1/2/3/2/1 (223) EM
  - Water Use Licence (WUL), Reference 10/D73A/ABGJ/2592
- Chemical Water Analysis:
  - Aquatico Water Quality Reports for 2019
  - Dust Watch Air Quality Reports for 2019
- Past Performance Assessments:
  - 2016-2018 Performance Assessments for the purposes of the Performance Assessment.

- Department of Water and Sanitation (DWS) consultation
  - Beeshoek Integrated WUL (IWUL) Amendment Request, letter dating 2018 and 2019
- Other Information:
  - All reference material is listed in the Performance Assessment Table included in Section 4 of this report.
  - Water Reports up until July 2019 (levels and qualities used).

2.2.2 Checklist Formulation

EnviroGistics (Pty) Ltd conducts its Performance Assessments on an electronic spreadsheet as presented in this report. The detail findings of the audit are incorporated together with compliance score levels in the spreadsheet. The findings are results of the evaluation of the collected audit evidence against audit criteria.

For ease of cross referencing, the Audit Findings and Scores within the spreadsheet follow the same order as laid out in the various licences and permits being assessed, but only lists those conditions which are measurable as being in compliance or not (i.e. conditions which cannot be measured are not included). The spreadsheet is formulated based on all provided information.

2.2.3 Site Assessment and Schedule

A site visit was undertaken on 16-18 July 2019. During the site visit, the following areas were visited:

- South Mine:
  - Village Opencast Pit ("Village Pit");
  - East Pit;
  - GK Pit;
  - West Pit;
  - East WRD;
  - West WRD;
  - Banded Iron Stone (BIS) and Contaminated Stockpiles;
  - ROM Stockpiles;
  - Village WRD;
  - Rehabilitation Areas;
  - Laydown Areas;
  - New Haul Road;
  - Workshop areas; and
  - General mining area.
- Administrative Area:
  - Demolition activities of houses; and
  - Area where Storm Water Dam is being constructed.
- North Mine:
  - Workshop areas;
  - General mining area;
  - Plant area;
  - Railway area;
  - Landfill Site;
  - Slimes Dam and surrounding area;
  - HH WRD; and
  - Discard Dump.

2.2.4 Rating Methodology

The specific audit spreadsheet prepared by EnviroGistics (Pty) Ltd was utilised to report on environmental compliance at the Mine. Each finding or observation received a compliance score in terms of the following:

Table 1: Rating Methodology

Compliance Score	Implication	Description
N/A	Not Applicable	Not applicable and will not be implemented or not discussed/assessed.
T/N	Take Note	The condition is applicable, and the client is aware of the requirement and must keep note of the condition in the near future.
Dup	Duplication	The same conditions which are not rated again.
NLR	No Longer Relevant	If a phase is completed and the condition does not relate to the subsequent phases.
0	Major Non-Compliance	Relates to the absence of a requirement needed to be implemented or the total breakdown of a process. Several minor non-compliances listed against the same requirement may represent a total breakdown of a process and thus could collectively be a major non-compliance.
1	Minor Non-Compliance	The requirement is partially implemented or non-compliant.
2	Observation	Relates to a matter about which the Assessor is concerned but which cannot be clearly stated as a non-compliance. Observations also indicate trends which may result in a future non-compliance.
3	Compliant	The project management plans and procedures are executed in a managed fashion (planned, tracked, verified and adjusted) based upon defined activities, inputs and outputs. Objective evidence is available for each process.

2.2.5 Reporting and Feedback

After the site visit a formal feedback meeting was held with the Engineering Department, Workshop Manager, Mining Team, and Environmental Department to present the general feedback on the observations made during the site visit. The site notes were also presented to the Licence Holder for their review.

The first draft report was submitted to the Licence Holder on 2 September 2019.

2.3 Details of Environmental Assessment Practitioner

2.3.1 The Company

EnviroGistics (Pty) Ltd (hereafter referred to as "EnviroGistics") was appointed, as the independent Environmental Assessment Practitioner (EAP) to undertake the required Compliance Assessment.

EnviroGistics, established in 2015, provides Independent Environmental Planning, Permitting, and Consulting Services to a vast array of clients throughout the mining, construction and development industry. EnviroGistics' independence is ensured with Ms Tanja Bekker being both registered with the South African Council for Natural Scientific Professions (SACNASP), and the Environmental Assessment Practitioners Association of South Africa (EAPASA), complying with the highest requirements of the South African Environmental Legislation. The company holds further no equity in any other project. EnviroGistics operates with the goal of fulfilling its vision and mission, breaking away from a general consulting mould, striving to form an integrate part of a project team. For this reason, clients will be provided with experienced, practical, technically sound, independent, objective and value adding advice, ensuring support on environmental planning, permitting and compliance matters.

EnviroGistics is an independent company and has no vested interest in the outcome of the environmental assessment.

2.3.2 Expertise of the Environmental Assessment Practitioner

Ms. Bekker is registered as a Professional Natural Scientist in the field of Environmental Science with SACNASP and is also a registered EAP with EAPASA, a legal requirement stipulated by NEMA. She is further certified as an ISO 14001 Lead Auditor. Her qualifications include BSc. Earth Sciences (Geology and Geography), BSc. (Hons.) Geography, and MSc. Environmental Management. In addition to these tertiary qualifications, she obtained a Certificate in Project Management, and completed the Management Advancement Programme at Wits Business School.

With more than 17 years' working experience in environmental management and the consulting industry and managing various Large Account Clients, she understands the South African Regulatory System, and can advise clients with due diligence on their environmental regulatory requirements and offer a solution driven service to their project life cycle. She is equipped with exceptional project management and coordination skills, which especially enhances the service she offers clients within the environmental permitting system.

Her key focus is environmental management and compliance with extensive experience in the mining industry. Project Management and Coordination of projects form a critical component of her duties, which include project planning, initiation of projects, client, authority and stakeholder consultation, specialist coordination, budget control, process control, quality control and timeframe management. Her interest lies in a client advisory capacity, being involved during due diligence investigations, pre-project development and assisting the client and engineering team in adding value to develop the project in an environmentally sustainable manner, considering client costs and liabilities, as well as considering the implication of environmental authorisation conditions and requirements on project deliverables. Her involvement in projects has spanned over the project life cycle from Due Diligence Investigations, Pre-Feasibility Investigations, Prospecting Right Applications, Mining Right Applications, Environmental Reporting and implementation and auditing of Environmental Management Plans and Authorisations.

Table 2: EAP Contact Details

Name	Tanja Bekker
Designation	Environmental Assessment Practitioner
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The following table presents the expertise of the EAP to carry out the Compliance Assessment.

Table 3: Table listing auditors experience

Name	Position	Project Responsibility	Qualification	Professional Registrations	Experience
Tanja Bekker	Principal Practitioner	Compliance Assessor	M.Sc. Environmental Management (RAU, now University of Johannesburg)	Registered member of the Environmental Assessment Practitioners Association of South Africa (EAPASA) (EAPASA Reg. 2019/306). South African Council of National Scientific Professions (SACNASP: Pr.Sci.Nat. Reg No. 400198/09. Member of the International Association for Impact Assessment (IAIA)	17 Years

Hendrik Kruger	Environmental Assessment Practitioner	Compliance Assessor	Geography (Hons.) (University of Johannesburg)	Member of the International Association for Impact Assessment (IAIA)	9 Years

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3 LEGISLATIVE SETTING

South Africa has a comprehensive environmental governance framework underpinned by an extensive array of environmental laws. The past years have evidenced the wholesale reform of South Africa's environmental legal framework under the guidance of the Constitution.

Historically, the mining industry in South Africa has not been subjected to comprehensive environmental regulation. However, in recent years, this has changed significantly, and the industry is now required to comply with a multifaceted network of mining and environmental legislation. There are no shortages of policy and legal frameworks to ensure "responsible" mining in South Africa. The Minerals and Mining Policy for South Africa, 1998 affirmed that the State, as custodian of the nation's natural resources, will support mining development while maintaining and enhancing environmental awareness of the mining industry in accordance with national environmental policy, norms and standards.

3.1 The Constitution

The Constitution reigns supreme and the advancement of human rights is one of the foundations of South Africa's democracy. Furthermore, the Bill of Rights plays a central role in the democratic regime because it embodies a set of fundamental values which should always be promoted . An environmental right is contained in Section 24 and is, arguably, the cornerstone for environmental governance in South Africa which includes the mining industry. Section 24(a) proclaims the right of everyone ***"to an environment that is not harmful to their health or well-being"***. Mining companies are thus duty-bound to constitutional, legislative, and other measures to prevent pollution and ecological degradation, promote conservation and to develop in a sustainable manner.

The constitutional environmental right elevates the importance of environmental protection and conservation; and emphasises the significance that South Africans attach to a sound and healthy environment. In addition, the environmental right applies horizontally; and this implies that the mining industry must exercise a duty of care if liability, based on the constitutional environmental right, is to be avoided. The constitutional environmental right is given effect to by means of detailed statutory provisions ranging from framework to sectoral legislation which relate to mining.

3.2 The National Water Act

One of the main and ever-continuing concerns in South Africa is the sustainability of water management, and the costs associated with the prevention and remediation of pollution. The *National Water Act, 1998* (Act No. 36 of 1998) (NWA) is one of the government's answers to some of these challenges and functions as sectoral legislation within the framework of NEMA.

The NWA provides for water use authorisations which an operation will have to apply for, before commencing with a water use activity as defined in Section 21 of the NWA. Section 4 states that ***"a person may use water in terms of a general authorisation or licence under this Act"***.

Various conditions may be attached to these licences and a breach thereof will result in criminal and civil liability. The conditions attached to water use authorisations will function alongside the additional protective measures, duty of care and statutory liability provisions provided by the NWA and other legislation to regulate a whole array of water issues.

Section 21 of the NWA lists the following 11 water uses which can only, legitimately, be undertaken through a water use authorisation issued by the DWS:

(a) taking water from a water resource;

(b) storing water;

(c) impeding or diverting the flow of water in a watercourse;

(d) engaging in a stream flow reduction activity contemplated in section 36;

(e) engaging in a controlled activity identified as such in section 37(1) or declared under Section 38(1);

(f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduits;

(g) disposing of waste in a manner which may detrimentally impact on a water resource;

(h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;

(i) altering the bed, banks, course or characteristics of a watercourse;

(j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and

(k) using water for recreational purposes.

With reference to Section 22(1) of the NWA, a person may only use water without a licence in the following instances:

- if that water use is permissible in terms of Schedule 1;
- if that water use is permissible as a continuation of an existing lawful water use; or
- if that water use is permissible in terms of a general authorisation issued in terms of Section 39.

An existing lawful water use is a water use which has taken place at any time during a period of two years immediately before the date of commencement of the NWA or which has been declared an existing lawful water use in terms of Section 33 of the NWA and which was authorised by or under any law which was in force immediately before the date of commencement of the NWA.

In addition to the above, Section 19 of the NWA echoes the duty of care envisaged in Section 28 of NEMA and addresses the prevention and remediation of the effects of pollution. The NWA provides for a broad duty of care in that:

"(1) an owner of land, a person in control of land or a person who occupies or uses the land on which –

a) any activity or process is or was performed or undertaken; or
b) Any other situation exists, which causes, has caused or is likely to cause pollution of a water resource must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring."

The words "likely to cause pollution" broadens the scope of the duty, which enables an activity, or situation that is land-based, to trigger the application of the duty. The "reasonable measures" are not prescribed, but may include measures intended to:

"Cease, modify or control any act or process causing the pollution; comply with any prescribed waste standard or management practice; contain or prevent the movement of pollutants; eliminate any source of pollution; remedy the effects of pollution; and remedy the effects of any disturbance to the bed and banks of a watercourse."

The detrimental impact of mining on water resources is further regulated by the NWA in a comprehensive set of regulations titled: *"Regulations on the Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources"*. In terms of these regulations (GN704 of 1999):

"No person in control of a mine or [mining] activity may place or dispose of any residue or substance which causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation."

Regulation 7 provides for a whole array of provisions which specifically aim to protect water resources from mining. These provisions state that every person in control of a mine or mining activity must take all reasonable measures to, *inter alia*: prevent water containing waste or any substance which causes or is likely to cause pollution from entering any water resource; design, modify, locate, construct and maintain all water systems including residue deposits, to prevent the pollution of any water resource through the operation or use thereof; cause effective measures to be taken to minimise the flow of any surface water or floodwater into mine workings, opencast workings, other workings or subterranean caverns; prevent the erosion or leaching of materials from any residue deposit or stockpile from any area; and ensure that water used in any process at a mine or activity is recycled as far as practicable. These provisions specifically relate to the protection of water resources and they clearly set out further additional liabilities for mines as far as their water resource protection activities are concerned.

3.3 Legal Risk Summary

The sections which follow hereunder provide a general overview of the legal risk/ liability associated with non-compliance with governing legislation. Kindly note that only the most relevant sections will be highlighted.

3.3.1 Non-compliance with the NWA

3.3.1.1 General provisions

Section 22 of the NWA states that a person may only legally use water in the following instances:

- without a licence –
  - if that water use is permissible under Schedule 1;
  - if that water use is permissible as a continuation of an existing lawful use; or
  - if that water use is permissible in terms of a general authorisation issued under Section 39.
- if the water use is authorised by a licence under this Act; or
- if the responsible authority has dispensed with a licence requirement.

Section 151 of the NWA states that no person may use water otherwise than as permitted under this Act. Furthermore, any person who contravenes any provision is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and, in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment.

3.3.1.2 Section 19 – Duty of Care

An owner of land, a person in control of land or a person who occupies or uses the land on which any activity or process is or was performed or undertaken or any other situation exists which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.

Section 19(2) states that reasonable measures, may include measures to:

- cease, modify or control any act or process causing the pollution;
- comply with any prescribed waste standard or management practice;
- contain or prevent the movement of pollutants;
- eliminate any source of the pollution;
- remedy the effects of the pollution; and
- remedy the effects of any disturbance to the bed and banks of a watercourse.

Sections 151(i) and (j) of the NWA state that no person may:

- unlawfully and intentionally or negligently commit any act or omission which pollutes or is likely to pollute a water resource; and
- unlawfully and intentionally or negligently commit any act or omission which detrimentally affects or is likely to affect a water resource.

Furthermore, any person who contravenes any provision is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and, in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment.

3.3.1.3 Cancellation of Permits

Section 54 of the NWA governs the suspension or withdrawal of entitlements to use water. A responsible authority may by notice to any person entitled to use water under this Act suspend or withdraw the entitlement if the person fails –

- to comply with any condition of the entitlement;
- to comply with this Act; or
- to pay a charge which is payable in terms of Chapter 5.

An entitlement may be suspended under subsection (1) –

- for the period specified in the notice of suspension; or
  until the responsible authority is satisfied that the person concerned has rectified the failure which led to the suspension.

4 COMPLIANCE ASSESSMENT

4.1 Performance Assessment Outcomes

The Performance Assessment is presented and a tabular format to provide the reader with an understanding of the following:

1. WUL Requirement;
2. Observation made in terms of Compliance;
3. Whether the mine is compliant, partially compliant, non-compliant, whether the condition is applicable or whether it should be taken notice of for further developments;
4. Recommendations on how to achieve compliance and/or improvements; and
5. Who the responsible department is.

Table 4: Performance Assessment

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
	APPENDIX I - General Conditions of licence						
	Licence and Review Period	The licence is valid for a period of 24 year and may be reviewed on the interval not more than 5 years.	WUL Ref 10/D73A/ABGJ/2592 (1 August 2018)	**3**	**3**	No recommendations.	-
1	This Licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998)	The mine is in ongoing consultation with the DWS regarding the status of the implementation of the WUL 2018 conditions. The mine has also consulted with the DWS to include the two existing fire water tanks and change a location of a borehole at the Village Opencast Pit due to the approved location having collapsed. A new Change House has been built on site within the mining rights area at the entrance to the North Mine. This facility also includes a sump. All these activities will be included in an amendment application to the WUL, 2018 which is in progress. Other water uses such as the Zinc Dam and the Steel Dam on site, is planned to be included into the water circuit in the future, this, together with the addition of potential new tanks and changes to the mine infrastructure is currently being assessed as part of an EIA process and a new Water Use Licence Application (WULA) will be undertaken.	DWS Letter 29 November 2018 DWS Letter 20 March 2019	**3**	**3**	The current WUL Amendment application and WULA should proceed and be finalised as soon as possible.	SHEQ Department
2	The responsibility of complying with the provisions of the licence is vested in the licence and not any other person or body	A site inspection by the EAP was undertaken during November 2018 after the WUL was issued. The conditions of the licence were discussed and the SHEQ Department is aware of the responsibility.	Site observations	**3**	**3**	Regular meetings between the SHEQ, Mining and Production Department must continue to ensure that planning and legal compliance can be run in parallel.	SHEQ Department
3	The Licensee must immediately inform the Provincial Head of any change of name, address, premises and / or legal status.	Noted, the licence was issued on 21 August 2018. Prior to the issuance of the WUL, the mine informed the DWS of the appointment of Mr. Msimelelo Silomntu (Environmental Superintendent).	Site observations Letter from the mine to the DWS, 5 January 2017 DWS Letter 29 November 2018 DWS Letter 20 March 2019	**3**	**3**	No recommendations.	-
4	If the properties in respect of which this license is issued is subdivided or consolidated, the Licence must provide full details of all changes in respect of the properties to the Provincial Head of the Department within 60	A site inspection was undertaken during 16-18 July 2019. The conditions of the licence were discussed and the SHEQ Department is aware of the responsibility.	Site observations	**T/N**	**T/N**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
	days of the said change taking place.						
5	If a water user association is established in the area to manage the resource, membership of the Licensee to this association is compulsory	The mine is activity involved with the Tshiping Water Users Association (WUA). Water levels, abstraction and rainfall volumes are submitted monthly to the association, with water quality results submitted quarterly. In addition to this, the mine is also actively involved in a farmer's forum meeting.	Site Observations	**3**	**3**	No recommendations.	-
6	The Licensee must be responsible for any water use charges or levies imposed by a responsible authority.	The mine pays both the Tshiping WUA and the DWS for water abstracted.	DWS Proof of payment 24 October 2018 Tshiping WUA Proof of payment May 2019	**3**	**3**	No recommendations.	-
7	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 licence, when a comprehensive determination of the Reserve has finally been made; it shall be given effect to.	A site inspection was undertaken during 16-18 July 2019. The conditions of the licence were discussed and the SHEQ Department is aware of the responsibility. It is important that based on the meetings held with the DWS during the WUL Application process for the WUL 2018, the mine has reduced the request for water abstraction from groundwater by approximately 1 000 000m³. In addition to this, the mine is currently implementing the optimisation of the overall water circuit, with numerous automatic flow meters implemented on site.	Site observation WUL, 2014 WUL, 2018	**T/N**	**T/N**	No recommendations.	-
8	The licence must not be construed as exempting the licence from compliance with the provisions of any other applicable Act, Ordinance, Regulation or By-law.	Noted. The Licence Holder is operating in terms of Environmental Authorisations in terms of the NEMA, MPRDA and NWA for the overall operation and understand that they are not exempted from compliance with any other provisions of other legislation. Some observations of importance collected after issuance of the WUL 2018 are the following: • The mine has been in consultation with the DWS to include the two existing fire water tanks, conservancy tank at the North Laundry and change the location of a borehole at the Village Opencast Pit (WG73) due to the borehole at the approved location having collapsed. • A new Change House has been built on site within the mining rights area at the entrance to the North Mine. This facility also includes of a sump. All these activities will be included in the 2018 WUL Amendment application which is currently in progress. • Other water uses such as the Zinc Dam and the Steel Dam on site, is planned to be included into the water circuit in the future; this, with the addition of potential new tanks and changes to the mine infrastructure is currently being assessed as part of an EIA process and a new WULA will be undertaken.	WUL 2018, Reference 10/D73A/ABGJ/2592 (21 August 2018) Site Observations	**2**	**3**	The current WUL Amendment application and WULA should proceed and be finalised as soon as possible.	SHEQ Department

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
9	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.	A site inspection was undertaken during November 2018 and again 16-18 July 2019. The conditions of the licence were discussed and the SHEQ Department is aware of the responsibility. An amendment application to the WUL 2018 is currently underway in consultation with the DWS.	Site Observations	**3**	**3**	No recommendations.	-
10	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 finalization.	A site inspection was undertaken during 16-18 July 2019. The conditions of the licence were discussed and the SHEQ Department is aware of their responsibility. An internal WUL audit was undertaken during 17 May 2018 on the WUL, 2014 which has since been replaced by the WUL, 2018. An internal WUL audit on the WUL, 2018 has been completed and submitted to the DWS on 17 May 2019.	Submission of the 2018 Internal WUL Audit Report, 14 June 2018	**3**	**3**	No recommendations.	-
11	The Licensee must 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 of this licence and a report on the audit shall be submitted to the Provincial Head within one month of finalization.	The 2018 External Audit was intended to assess compliance in terms of the 2014 WUL which were repealed with the issuance of the 21 August 2018 WUL. As a result, the audit scope for 2018 was amended to allow for the three (3) months audit of the 2018 WUL. This report was submitted to the DWS on 7 December 2018.	Letter to the DWS, 7 December 2018	**3**	**3**	Note that the 2019 Performance Assessment report must be submitted to the DWS within one months of finalisation.	SHEQ Department
12	Flow metering, recording and integrating devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than two years. Calibration certificates shall be available for inspection by the Regional Head or his /her representative upon request.	Compliant. A clamp-on flow meter is used to verify the flow meters. The clamp on meter will be calibrated every second year. Constraints have been experienced in the past in terms of understanding the flow and volumes of flow within the water management circuit, as only manual readings were available. This presented a constraint as it does not allow the readings to reflect during the same time of the day. A new flow meter replacement project has been initiated on site. Automatic flow meters have been implemented in some of the areas, with the project of replacement still ongoing. According to the monthly water monitoring report, April 2019, only 4 of the 12 flow meters, as viewed during the previous years' audit are still required, which has been a substantial accomplishment over this year.	April 2019 Monthly Water Monitoring Report	**3**	**3**	No recommendations.	-
13	Any incident that causes or may cause water	No reportable incidents have occurred in the past 12 months.	Site observations	**T/N**	**T/N**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
	pollution must be reported to the Provincial Head or his/her designated representative within 24hours.						
14	Licensee shall use water efficiently to minimise total water intake, void usage of water where possible, implement "good" housekeeping and operating practices, and maximise the reuse/recycle of contaminated water.	A strong emphasis on understanding and improving the water circuit on site has commenced on site, and a new flow meter replacement project has been initiated on site. Automatic flow meters have been implemented in some of the areas, with the replacement project still ongoing. According to the monthly water monitoring report, April 2019, only 4 of the 12 flow meters, as viewed during the previous years' audit are still required, which has been a substantial accomplishment over this year. Some of the concerns in terms of water management on site observed during the site visit include: • At the Jig Plant, overflow from the area where the pump is located were observed. Pump was operating, however there are no specific and effective bund present and the area cannot accommodate the volumes of water. Water is discharging on open ground forming gulleys and then enters into a sump from where water is channelled to the settling dams; water is however also discharging into an uncontained area. A pipe was also observed, where water is pumped from the Jig Plant into the uncontained area and no longer overflow. • A repeat finding from the previous two years (2017 and 2018) was observed at the Thickener and Clarifier system. Water around the pumps at the Thickener, which is channelled through a pipe into the open area around the Clarifier, is creating erosion on the slopes, which is already visible from the road between the Thickener and the Clarifier. This has resulted in the area around the Clarifier being a wet marshy area. A berm has been placed around the Clarifier to contain water, but water is still running off beyond this berm. The pump at the Clarifier seems not to be capable of managing the volumes of water present. Four new water tanks area planned in this area. Water runoff forms gulleys and reports to a sump downgradient which connects to the downgradient settlers. • At the sculpting, buffing and screening area, the bund wall is broken (a hole is present) which allows water to discharge through an informal, unlined channel towards a downgradient sump. Weeds are also present in this channel. The Wash and Screen sump receives water from the downgradient settlers. This sump is not formally bunded and highly silted. It is not clear whether the pump can operate with the volume of silt present. Leaks from the upgradient valves are present and also reporting water to this sump area. • At the North TMM Workshop, when following the channel around the workshop the same finding as for the 2018 External Performance Assessment, was made - at the workshop discharge pipe near the railway line, water was present during the site visit indicating that discharge is taking place.	Site observations 2017 & 2018 External Performance Assessment Report	**0**	**3**	The capacity and likely the operational procedures (i.e. potential decant of the Thickener during shutdown and/or maintenance periods) of the containment facilities at the Plant area should be investigated to avoid overflows during maintenance schedules and should be undertaken in line with the current Storm Water Management Plan. Storm water management measures are recommended to be implemented to manage water in the specific areas in and around the Plant area, for instance downgradient of the Jig Plant, Thickener, Clarifier, around the Sculpting, buffing and screening area and also at the North Vehicle Workshop. Measures are required to effectively channel stormwater in dirty water areas, to contain water in such dirty water areas and reuse this where possible to decrease the storm water runoff downgradient. It is recommended that measures be implemented to prohibit any uncontained discharges into the environment, and if possible, to revert this water back to the mines internal water management circuit.	Engineering and SHEQ Departments
15	The licensee is exempted from the requirements of Regulation 5 of	Noted.	WUL 2018, Reference 10/D73A/ABGJ/2592 (21 August 2018)	**T/N**	**T/N**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
	Government Notice 704 of 04 June 1999) for the construction of various safety berms around road — to be used on haul roads to regulate movement of vehicles and trucks on site; and the use of enviroberms around opencast pits were required.						
16	This Licence will supersede any water use authorisation that was issued by the Department.	Noted, therefore this external Performance Assessment has been undertaken in line with the 2018 WUL.	WUL 2018, Reference 10/D73A/ABGJ/2592 (21 August 2018)	**T/N**	**T/N**	No recommendations.	-
17	The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of:	The Licence Holder is aware of this condition.	Site Observations	**T/N**	**T/N**	No recommendations.	-
17.1	shortage of water						
17.2	inundations or flood						
17.3	siltation of the resource; and						
17.4	required reserve releases.						
	APPENDIX II - Section 21 (a) of the Act: Taking water from a water course						
1	The Licensee is authorised to abstract a maximum quantity of five million six hundred and fifty- five thousand, three hundred and seventy-one cubic metres per annum (5 655 371 m*/a) of water from groundwater resources for mining, processing, and domestic use as indicated in Table 2.	The water volumes abstracted during June 2019 amounts to 4 019 705m³.	Monthly Water Report, June 2019 (Borehole Supply)	**3**	**3**	No recommendations.	-
2	The quantity of water authorised to be taken in terms of this licence may not be exceeded without prior authorisation by the Minister.	Compliant.	Site Observations	**3**	**3**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
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.	The Licence Holder is aware of this condition.	Site Observations	**T/N**	**T/N**	No recommendations.	-
4	The above-mentioned volumes may be reduced when the licence is reviewed.	The Licence Holder is aware of this condition.	Site Observations	**T/N**	**T/N**	No recommendations.	-
5	The Licensee must 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.	As part of the current WUL Amendment application and Water Conservation and Demand Management Plan (WCDMP) investigations, the mine is reducing the allowable volume of 6 816 221m³/a to 5 655 371m³/a (approved in the WUL 2018). Various avenues for water management are being investigated which include: • Optimal reuse of water in the circuit; • Reduction in the abstraction from groundwater, which has now been approved in the WUL; • Dust suppression techniques (using ECAT, and thereby reducing water suppression), to reduce the need to use water as a dust suppressant; • Implementation of flow meters, with 41 automatic flow meters now equipped on site and four more still planned. Some areas of concern have been observed on site in terms of water conservation and management specifically around the Plant Area and the North TMM Workshop, as presented before.	Current draft WCDMP, 2019 Monthly Water Report - June 2019 Version 1.3	**3**	**3**	Strong emphasis should be placed on the implementation of the WCDMP once completed. The capacity and likely the operational procedures (i.e. potential decant of the Thickener during shutdown and/or maintenance periods) of the containment facilities at the Plant area should be investigated to avoid overflows during maintenance schedules and should be undertaken in line with the current Storm Water Management Plan. Storm water management measures are recommended to be implemented to manage water in the specific areas in and around the Plant area, for instance downgradient of the Jig Plant, Thickener, Clarifier, around the Sculpting, buffing and screening area and also at the North Vehicle Workshop. Measures are required to effectively channel stormwater in dirty water areas, to contain water in such dirty water areas and reuse this where possible to decrease the storm water runoff downgradient. . It is recommended that measures be implemented to prohibit any uncontained discharges into the environment and if possible, to revert	SHEQ and Engineering Departments

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
						this water back to the mine's internal water management circuit.	
6	All water taken from the resource shall be measured as follows:						
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	Water taken is captured via automatic flow meters (41 implemented to date). Water taken is presented in the Month Water Report on monthly intervals, but the daily volumes are available.	Weekly dewatering report; Monthly Water Report June 2019	**3**	**3**	No further recommendations.	-
6.2	The Licensee shall keep record of all water taken and a copy of the records shall be forwarded to the Provincial Head each year with the annual water balance as well as per Condition 6.2 of Appendix IV.	Compliant.	Submission of water quality and level report, 26 June 2019	**3**	**3**	The Licence Holder should submit records of all water taken from the resource annually.	SHEQ Department
7	The Licensee must establish and implement a continual process of raising awareness amongst itself, its workers and stakeholders with respect to Water Conservation and Water Demand Management initiatives.	Awareness flashes (talk topics) are undertaken monthly, which includes topics such as water. A WCDMP has been developed in a workshop forum with the mine and is currently being updated by iLEH in draft forum. The mine is commended on the integrated approach in which the production, Engineering, Management and Environmental Departments work together in optimising water management on site.	Site observations	**3**	**3**	Strong emphasis should be placed on the implementation of the WCDMP once completed. It is recommended that awareness activities be implemented at each of the mining areas, where the specific areas should identify practices for improving water conservation and demand in their area of operation. This could be undertaken as an internal competition and then the best options or solutions could be incorporated into the WCDMP.	SHEQ and Engineering Departments
8	The Licensee is to provide an updated service level agreement for the provision of water from Sedibeng Water Board within three (3) months of issuance of this Licence.	The mine has an updated agreement with Kolomela dated 28 November 2012. In this letter it is stated that: "This letter serves to confirm that an agreement has been signed with Sedibeng water to supply Beeshoek Mine with water on behalf of Kolomela Mine to compensate for water lost as a result of dewatering impacts." The letter further states that: "We (Kolomela) requests that you (Beeshoek) forward any invoices received from Sedibeng to the Kolomela Mine Environmental Specialist, Jaco Lambrechts, for action". A letter thereafter from Sedibeng Water to Kumba Iron Ore Ltd, dated 6 September 2012 relating to "Increase in tariff at which surplus groundwater is beneficially released by Sishen Iron Ore Mine to Sedibeng Water, as well as the supply to	Kumba letter, 28 November 2012 Sedibeng Water letter, 6 September 2012 Eight WUL Response, 20 June 2018	**1**	**3**	The letter in question (November 2012) was submitted to the DWS on 20 June 2018 as part of the 8th WUL Response – in support of the updated Water Balance. It is recommended that this letter be submitted to the DWS formally under a Beeshoek Letterhead. Should updated agreements be required, Beeshoek will need to enter into consultation with Kumba to obtain an updated agreement. In this event the	Mine Management & SHEQ Department

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
		Beeshoek Mine". The letter states that: "For water supplied to Beeshoek reservoir that will be delivered directly to Beeshoek Mine and for the volume of water that Kumba may have to stand good for due to the partial dewatering of Beeshoek' s aquifer, Sedibeng Water will charge the administrative costs for handling." The letter further state that: "This means that the normal tariffs and admin will pertain, as per point (b) above, however, Kumba will subtract the volume that is effectively delivered to Beeshoek Mine via the Beeshoek Reservoir from the amount billed to Sedibeng Water and in addition pay Sedibeng xc/k/ for that particular volume of water. The maximum demand for Beeshoek Mine does not exceed 320m³/hr and if this supply is increased or extended past June 2014 the tariff will be revisited." No further information in this regard is available. The mine is however in ongoing telephonic consultation with the DWS. No written communication in this regard to proof such communication and agreements are kept.				way forward on how to proceed in terms of Sedibeng Water Board Service Level Agreement with actions and timeframes should be included in the submission to the DWS. If these agreements are still in process, the mine should provide written feedback to the DWS in order to ensure that during audit processes, or when DWS officials are no longer in the Department, the communication records and decisions can be substantiated.	
	APPENDIX II - Section 21 (b) of the Act: Storing of water						
1,1	This licence authorises storing of water as indicated in Table 3.	All dirty and clean water dams are included into the WUL. Additional Water Uses which are currently being applied for in terms of a WUL Amendment application include: * Fire Water tanks. and a conservancy tank New water uses such as the unused facilities, like the Zinc Dam, and the Steel Dam will be included in the new 2019 WULA, along with newly identified activities, not as yet constructed.	WUL 2018, Reference 10/D73A/ABGJ/2592 (21 August 2018)	**2**	**3**	WULs should be obtained for all water uses on site.	SHEQ Department
1,2	The Licensee must obtain any propriety rights or servitudes at their own cost.	The Licence Holder is aware of this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-
1,3	The Licensee is not indemnified from any detrimental effect that the dam(s) may have on other properties. The department does not accept any responsibility or liability for any damages or losses that may be suffered by any other party as a result of the construction and utilisation of the dams	The Licence Holder is aware of this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-
1.4	The Licensee is not exempted from compliance with any applicable Dam Safety Regulations.	Noted, none of the facilities have a Dam Safety trigger.	Site observations	**T/N**	**T/N**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
1.5	The Licensee must follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the storage of water in all storage facilities.	The Storm Water Dam North is currently being constructed under supervision of engineers. Interviews were undertaken with these parties on site, and a strong commitment towards environmental management was evident and observed. Flow meters have been put in place at main water storage and transfer points with 41 automatic flow meters in place. Detailed water management records, such as flow and abstraction volumes are kept on site.	Site observations	**3**	**3**	No recommendations.	-
1.6	No additional water storage facilities can be constructed on the property without prior written consent of the Minister or responsible authority.	Noted, no additional storage tanks have been constructed since the issuance of the WUL, 2018.	Site observations	**T/N**	**T/N**	No recommendations.	-
2	**Monitoring Requirements**						
2.1	The quantity of water stored must be recorded as at the last day of each month.	Daily monitoring of flow through major lines on site is undertaken with the use of flow meters. This data is stored around the 27th of each month when the consolidation of all monitoring data takes place. Not all water in tanks are recorded, as the storage tanks are merely transfer stations (less than 100m³ tank facilities).	Site observations	**3**	**3**	No recommendations.	-
2.2	The Licensee shall establish a monitoring programme and the date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis.	Aquatico Scientific (Pty) Ltd (Aquatico) is the appointed specialist to undertake the monitoring according to a monitoring programme. Aquatico is an accredited sampling company and site notes are kept.	Aquatico Water Quality Report, April 2019	**3**	**3**	No recommendations.	-
2.3	The Licensee shall submit the monitoring results as stipulated in Condition 6.2 of Appendix IV.	Water monitoring results are submitted to the DWS annually.	Proof of submission, 26 June 2019	**3**	**3**	No recommendations.	-
3	**Construction of Dam (s)**						
3,1	The as-built plans and specifications of the dam(s)/storage facilities must be submitted to the Provincial Head for his/her records.	The Storm Water Dam North has been included into the WUL 2018 and is currently being constructed. Design drawings have been submitted to DWS with the WULA. Once construction is completed the Licence Holder will submit the as built plans.	Site observations	**T/N**	**T/N**	It is important for the Licence Holder to submit the as-built design drawings of the Storm Water Dam North once this has been constructed. The associated silt trap should be included into these designs.	SHEQ and Engineering Departments
3.2	Construction of the dam(s) may not commence before authorisation in terms of the Environment	The Storm Water Dam North is approved in terms of the NEMA.	NC 30/5/1/2/3/2/1 (223) MR, 10 March 2017	**3**	**3**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
	Conservation Act, 1989 (Act 73 of 1989) is issued.						
3.3	The Government reserves the right to construct storage works at any time in any stream and to store all surplus water reaching the dam(s) and to control the allocation of such water.	The Licence Holder is aware of this condition.	Site observations.	**T/N**	**T/N**	No recommendations.	-
	APPENDIX IV - Section 21 (g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource						
1	**CONSTRUCTION, OPERATION AND MAINTENANCE**						
1,1	The Licensee must ensure that the disposal of the wastewater and the operation and maintenance of the system are done according to the provisions in the Report.	Please refer to the observations made in this audit report.	Site observations	**T/N**	**T/N**	Please refer to the recommendations made in this audit report.	-
1,2	The waste facilities listed in Table 4 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.	The Slimes Dam was observed to have adequate freeboard. A repeat finding since the 2017 External Performance Assessment was observed at the Thickener and Clarifier system. Water around the pumps at the Thickener, which is channelled through a pipe into the open area around the Clarifier, is creating erosion on the slopes, which is already visible from the road between the Thickener and the Clarifier. This has resulted in the area around the Clarifier being a wet marshy area. A berm has been placed around the Clarifier to contain water, but water is still running off beyond this berm. The pump at the Clarifier seems not to be capable of managing the volumes of water present. Four new water tanks area planned in this area. Water runoff forms gulleys and reports to a sump downgradient which connects to the downgradient settlers. No concerns were observed around the tank systems. The settling dams and supporting channels were in good order.	Site observations Basic Assessment Report (BAR), 2016 WUL 2018, Reference 10/D73A/ABGJ/2592 (21 August 2018)	**0**	**3**	The capacity and likely the operational procedures (i.e. potential decant of the Thickener during shutdown and/or maintenance periods) of the containment facilities at the Plant area should be investigated to avoid overflows during maintenance schedules and should be undertaken in line with the current Storm Water Management Plan. Storm water management measures are recommended to be implemented to manage water in the specific areas in and around the Plant area, for instance downgradient of the Jig Plant, Thickener, Clarifier, around the Sculpting, buffing and screening area and also at the North Vehicle Workshop. Measures are required to effectively channel stormwater in dirty water areas, to contain water in such dirty water areas and reuse this where possible to decrease the storm water runoff downgradient.	Engineering & SHEQ Departments

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
1.3	The Licensee must use acknowledged methods for sampling and the date, time and sampler must be indicates for each sample.	Compliant.	Aquatico Quarterly Report, April 2019	**3**	**3**	No recommendations.	-
1.4	The Licensee shall carry out and complete all the activities, including the construction and operation of the facilities listed in Table 4 and according to the final plans submitted with the Integrated Water Use Licence Application as approved by the Provincial Head.	In terms of the disposal volumes: The following volumes have been recorded for the waste disposed, which are all in line with the WUL Requirements: * East Pit Waste (1 327 016 tons) * Village Waste (13 366 840 tons) * BN Pit Waste (GF WRD) (2 4051 053 tons) * HF Pit Waste (2 282 98 tons) * North Pit (Detrital) Waste (126 825 tons) On-grade and Off-grade ROM are also being recorded by the mine: * Village ROM (On-grade: 2 238 835 tons; Off-grade: 812 903 tons) * East Pit ROM (On grade: 380 282 tons; Off-grade: 99 789 tons) * BN Pit ROM (On-grade: 415 142 tons; Off-grade: 1 467 tons) * HF Pit ROM (On-grade: 117 605 tons; Off-grade: 160 509 tons) Note that HF WRD has not been included into the 2018 WUL, 2018; HL WRD is however included. In terms of operation observations: The Slimes Dam is currently being formalised to optimise operational aspects in terms of beaching. For this purpose, the Return Water Dam is also formalised to optimise water circulation in the system. Further studies are currently underway under the supervision of Geo Tail (Pty) Ltd to investigate the need for a formalised Return Water Dam. No capacity concerns were observed on site. Downgradient of the Clarifier, erosion gulleys were observed. During the site visit significant overflows around the clarifier system was present and the sump and pump infrastructure were under water. There was no sign of overflow visible around the Clarifier, however upgradient of the system, erosion gulleys were present arising from the thickener area. The area around the Thickener was characterised with a muddy environment and erosion gulleys from either overflows or decanting from this system were evident. These overflow erosion gulleys were observed to flow from the thickener system, past the Clarifier into the Plant area. The current rehabilitation plan allows for the reshaping of waste rock on site. Successful shaping (specifically referring to the rehabilitated areas on both North and South Mines) has been undertaken. The mine is currently rehabilitating the HH and East Pit WRDs.	Site observations. BAR, 2016 WUL 2018, Reference 10/D73A/ABGJ/2592 (21 August 2018) Dump Status June 2018 Monthly Water Report June 2019	**1**	**3**	The HF WRD should be included into the new WULA. The practices around the Thickener and Clarifier must be investigated to contain dirty water in the system and eliminate the erosion and ponding currently being created.	Engineering & SHEQ Departments

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
		No backfilling has been taken place during the past year, as the mine is optimally mining the Village and BN Pits.					
1.5	The Licensee must ensure that the disposal of wastewater, operation, and maintenance of the system are done according to the provisions in the Report.	When Considering Annexure IV, Condition 1.2, areas of concern were observed in terms of the following: * Downgradient of the Clarifier, erosion gulleys were observed. During the site visit significant overflows around the clarifier system was present and the sump and pump infrastructure were under water. There was no sign of overflow visible around the Clarifier, however upgradient of the system, erosion gulleys were present arising from the thickener area. The area around the Thickener was characterised with a muddy environment and erosion gulleys from either overflows or decanting from this system were evident. These overflow erosion gulleys were observed to flow from the thickener system, past the Clarifier into the Plant area. This operation is not in line with the requirements of GN704 and neither in terms of the capacity and containment of dirty water. * Another area of concern is at the North Mine Vehicle Workshop Area. The dirty water in this area drains from the north into an easterly channel, which discharges through a culvert into the Transnet Servitude. The mine has implemented action measures to improve the surfacing around the Workshop with orders in place. Although a large surfaced area is present, the dirty water from the Workshop is washed off with a pressure hose. There is no cut-off channel to capture the dirty water, which then runs into the uncontained area. It should be noted that a new WULA is currently underway to assess all additional water uses required.	Site observations	**0**	**3**	Systems must be put in place to ensure that dirty water is contained in designed systems and that no unauthorised discharges are taking place.	SHEQ, Engineering and Production Departments
1.6	The tailings and pollution control dams must be designed in such a manner that any spillage can be contained and reclaimed at an early stage without any impact on the surrounding environment.	Noted, no spills have been recorded over the past year.	Site observations	**3**	**3**	No recommendations.	SHEQ, Engineering and Production Departments
2	**STORAGE OF WATER CONTAINING WASTE**						
2,1	The Licensee is authorised to dispose of a maximum quantity in cubic metres (m3) or tons of waste or water containing waste into the waste management facilities on the properties described in Table 4.	The following volumes have been recorded for the waste disposed, which are all in line with the WUL Requirements: * East Pit Waste (1 327 016 tons) * Village Waste (13 366 840 tons) * BN Pit Waste (GF WRD) (24 051 053 tons) * HF Pit Waste (228 298 tons) * North Pit (Detrital) Waste (126 825 tons) On grade and Offgrade ROM are also being recorded by the mine: * Village ROM (On-grade: 2 238 835 tons; Off-grade: 812 903 tons) * East Pit ROM (On-grade: 380 282 tons; Off-grade: 99 789 tons)	Site observations BAR, 2016 WUL 2018, Reference 10/D73A/ABGJ/2592 (21 August 2018) Dump Status June 2018 Monthly Water Report June 2019	**0**	**3**	The volumes disposed of annually into the Thickener, is in excess of what is allowed. A study is required to determine whether the WUL allowance is sufficient or whether amendment thereto should be obtained.	Engineering and SHEQ Departments

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
		* BN Pit ROM (On-grade: 415 142 tons; Off-grade: 1 467 tons) * HF Pit ROM (On-grade: 117 605 tons; Off-grade: 160 509 tons) Note that HF WRD has not been included into the 2018 WUL; HL WRD is however included. Other areas assessed include: * Water in tailings to Slimes Dam: 4 106 078m³ * Jig Plant to Thickener: 16 357 237m³ and Wash and Screen to Thickener: 7 388 132m³ (in excess of WUL) The Storm Water Dam North is still under construction.					
3	**MONITORING**						
3,1	The Licensee shall monitor on monthly basis the water resources at groundwater and surface water monitoring points to determine the impact of the facility and other mining activities on the water quality by taking samples at the monitoring points as indicated in the Reports.	The current Beeshoek Mine Water Monitoring Programme consists of three major components of monitoring: 1. Surface water monitoring – Monthly frequency 2. Groundwater monitoring – Quarterly frequency 3. Groundwater level monitoring – Monthly frequency Water monitoring is undertaken by Aquatico. This condition is confusing if read on its own. It is important to assess this condition in terms of the following sections: Condition 3.7 and 3.11.	Aquatico April 2019 Water Monitoring Report. DWS Letter of Acknowledgement, June 2019	**3**	**3**	It is important for the Licence Holder to submit a monitoring protocol detailing the location of groundwater and surface water monitoring points, constituents to be monitored, as well as the frequency. This programme must be submitted to the DMR and DWS for signoff.	SHEQ Department
3,2	The date, time and monitoring point in respect of each sample taken shall be recorded together with the results of the analysis;	Compliant.	Aquatico Quarterly Report, April 2019	**3**	**3**	No recommendations.	-
3,3	Monitoring points shall not be changed prior to notification to and written approval by the Provincial Head.	Noted. The Licence Holder may have to amend the existing monitoring programme to adhere to all the conditions as presented in this Section (Conditions 3.1-3.19). Geo Pollution Technologies Gauteng (Pty) Ltd (GPT) has been appointed to assess the WUL in terms of the current groundwater monitoring programme and determine whether amendments are required.	Site observations	**T/N**	**T/N**	Changes to the monitoring network must be undertaken with the approval from the DWS. It is important for the Licence Holder to submit a monitoring protocol detailing the location of groundwater and surface water monitoring points, constituents to be monitored, as well as the frequency. This programme must be submitted to the DMR and DWS for signoff.	SHEQ Department
3,4	For boreholes already impacted upon, the	Noted, the mine is involved in water forum meetings and provides all water data to the Tshiping WUA as well.	Site observations	**3**	**3**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
	Licensee must inform the water user of the danger of using that water and supply water of acceptable quality to their intended use.						
3,5	Analysis shall be 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). The method of analysis must not change without prior notification to and approval from the Responsible Authority.	Aquatico is undertaking the monitoring on site and water analyses take place in their South African National Accreditation System (SANAS) accredited laboratory.	Aquatico Quarterly Report, April 2019	**3**	**3**	No recommendations.	-
3,6	Abstraction of groundwater must be monitored on a monthly basis. The installation of water meters must be at the expense of the Licensee and must comply with the specifications of the owner and should be SANS approved. The meters must reach 999 999m3 before being reset to 0m3.	The current Beeshoek Mine Water Monitoring Programme consists of major components of monitoring: 1. Surface water monitoring – Monthly frequency 2. Groundwater monitoring – Quarterly frequency 3. Groundwater level monitoring – Monthly frequency Water monitoring is undertaken by Aquatico. A clamp-on flow meter is used to verify the flow meters. The clamp-on meter will be calibrated every second year. Constraints are experienced in terms of understanding the flow and volumes of flow within the water management circuit, as only manual readings are available. This presents a constraint as it does not allow the readings to reflect during the same time of the day. A new flow meter replacement project has been initiated on site. Automatic flow meters have been implemented in some of the areas, with the project of replacement still ongoing. According to the monthly water monitoring report, June 2019, only 4 flow meters are still requires placement.	Aquatico April 2019 Water Quality Report DWS Letter of Acknowledgement, 25 July 2017	**3**	**3**	It is important for the Licence Holder to submit a monitoring protocol detailing the location of groundwater and surface water monitoring points, constituents to be monitored, as well as the frequency. This programme must be submitted to the DMR and DWS for signoff.	SHEQ Department
3,7	Groundwater Levels must be monitored around the areas where abstraction and dewatering take place around open pit area monthly for the duration of the mine operations.	Noted. The Licence Holder may have to amend the existing monitoring programme to adhere to all the conditions as presented in this Section (Conditions 3.1-3.19). GPT has been appointed to assess the WUL in terms of the current groundwater monitoring programme and determine whether amendments are required. However, groundwater levels are being monitored by the mine and this is submitted to the DWS. Monthly water levels are taken at groundwater boreholes by the mine and submitted quarterly to the DWS..	Site observations Manual Monitoring Holes, up until July 2019	**3**	**3**	Changes to the monitoring network must be undertaken with the approval from the DWS. It is important for the Licence Holder to submit a monitoring protocol detailing the location of groundwater and surface water monitoring points, constituents to be monitored, as well as	SHEQ Department

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
						the frequency. This programme must be submitted to the DMR and DWS for signoff.	
3,8	The impacts of dewatering must be quantified and monitored over time at point of potential impacts. The impacts identified along with mitigation measure (and progress on implementation of mitigation measures) needs to be provided to the Department along with the monitoring results on a quarterly basis.	Monthly water levels are taken at groundwater boreholes by the mine and submitted quarterly to the DWS.. An updated numerical model has been compiled by GPT for specifically the Village Pit and BN Pit operations and is currently being rerun by GPT for the purposes of potential opencast pit expansions.	Aquatico April 2019 Water Quality Report Updated numerical model of the predicted groundwater drawdown resulting from mining of the Village Pit at Beeshoek Mine, July 2017 Proof of submission June 2019	**3**	**3**	No recommendations.	-
3,9	In the event where legitimate groundwater users water requirements are compromised by dewatering activities, the licensee must provide a platform for a negotiated solution between the affected parties.	The Licence Holder is aware of this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-
310	Records of all monitoring data must submit to the Provincial Head as part of annual monitoring report in Condition 6.2 of Appendix IV.	Compliant.	Proof of submission, 26 June 2019	**3**	**3**	No recommendations.	-
3,11	Groundwater quality must be monitored on quarterly basis at all relevant boreholes identified in the Report.	The current Beeshoek Mine Water Monitoring Programme consists of three major components of monitoring: 1. Surface water monitoring – Monthly frequency 2. Groundwater monitoring – Quarterly frequency 3. Groundwater level monitoring – Monthly frequency Water monitoring is undertaken by Aquatico. This condition is confusing if read on its own. It is important to assess this condition in terms of the following sections: Condition 3.7 and this Condition 3.11.	Aquatico April 2019 Water Quality Report DWS Letter of Acknowledgement, 25 July 2017	**3**	**3**	It is important for the Licence Holder to submit a monitoring protocol detailing the location of groundwater and surface water monitoring points, constituents to be monitored, as well as the frequency. This programme must be submitted to the DMR and DWS for signoff.	SHEQ Department

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
3,12	The Licensee must install monitoring boreholes downstream of the operation, no further than 50m from potential hydrocarbon contamination sources (and any other potential hazardous material sources) such as(but not limited to) fuel tanks, dispenser, refuelling points of machinery, etc. This should be performed to monitor spillages and leaks.	Noted, one borehole is present at the South Mine to monitor the hydrocarbon storage areas, however one will have to be identified for North Mine. The Licence Holder may have to amend the existing monitoring programme to adhere to all the conditions as presented in this Section (Conditions 3.1-3.19). GPT has been appointed to assess the WUL, 2018 in terms of the current groundwater monitoring programme and determine whether amendments are required. This licence has been recently issued and the Licence Holder is in process of addressing this condition. It should be noted that all main bulk hydrocarbon storage areas are in bunded areas.	Site observations	**T/N**	**T/N**	Changes to the monitoring network must be undertaken with the approval from the DWS. It is important for the Licence Holder to submit a monitoring protocol detailing the location of groundwater and surface water monitoring points, constituents to be monitored, as well as the frequency. This programme must be submitted to the DMR and DWS for signoff.	SHEQ Department
3.13	A monitoring program must be developed that will ensure any plume that may arise from any of the existing unlined waste containing facilities is detected early must be implemented and such monitoring plan must be approved by the geohydrology specialist of the Department.	The Licence Holder may have to amend the existing monitoring programme to adhere to all the conditions as presented in this Section (Conditions 3.1-3.19). GPT has been appointed to assess the WUL, 2018 in terms of the current groundwater monitoring programme and determine whether amendments are required. Ongoing numerical models are undertaken by the mine.	Updated numerical model of the predicted groundwater drawdown resulting from mining of the Village Pit at Beeshoek Mine, July 2017	**3**	**3**	No recommendations.	-
3.14	Should a plume be detected from any of the existing unlined facilities, the applicant must submit to the Department within 30 days of such detection, a remedial action plan that will also detail how the occurrence of such pollution in future will be prevented	The Licence Holder is aware of this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-
3.15	As the Village Pit will drawdown mostly towards the southwest area and a few meters to a south eastern direction, additional boreholes at	The Licence Holder may have to amend the existing monitoring programme to adhere to all the conditions as presented in this Section (Conditions 3.1-3.19). GPT has been appointed to assess the WUL, 2018 in terms of the current groundwater monitoring programme and determine whether amendments are required. This licence has been recently issued and the Licence Holder is in process of addressing this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
	these positions need to be identified or drilled for monitoring points.	Ongoing numerical models are undertaken by the mine.					
3.16	A groundwater Monitoring Programme must be extended from the current monitoring programme done by the Mine. This means that the network should be extended over time to accommodate the migration of contaminants through the aquifer, extension of the cone of depression (water level monitoring) as well as the expansion of infrastructure and/or addition of possible pollution sources. An audit on the monitoring network should be conducted annually. The monitoring network programme should be in place and monitoring results must be submitted quarterly to the Department. Groundwater Quality Parameters such as pH, EC, Na, K, Al, Fe, Mg, Fe, Zn, Alkalinity, NO3, SO4, Fl and Cl.	Noted, the condition requires that the "current groundwater monitoring programme must be extended from the current monitoring programme done by the mine", this is based on the new uses approved in the WUL (i.e. expansion of infrastructure and/or addition of possible pollution sources). The Licence Holder is currently undertaking various studies, which includes the Contamination Study and the Risk Assessment Study, these reports have been submitted to the DWS during 28 August 2019. Based on the outcomes of these studies the Monitoring Programme will be updated. The condition further requires that the monitoring programme must be in place, and annually audited". At the current time the groundwater monitoring programme is partially implemented with all constituents monitored except for zinc. The current monitoring programme has therefore not been extended to include the constituents as required in the WUL and is still in process of being assessed in terms of the expansion of the borehole monitoring network.	Aquatico April 2019 Water Quality Report Contamination Study, May 2019 Proof of submission of Risk Assessment Report, 28 August 2019	**1**	**3**	The Licence Holder should audit the current water monitoring protocol in line with the outcomes of the studies conducted and the required amendments to the protocol should be implemented. It is important for the Licence Holder to submit a monitoring protocol detailing the location of groundwater and surface water monitoring points, constituents to be monitored, as well as the frequency to the DWS. This programme must be submitted to the DMR and DWS for signoff. The first monitoring report should be submitted to the DWS within 18 months of the issuance of the WUL, February 2020.	
3.17	A groundwater risk assessment using available information shall be done on all waste handling facilities. There should be at least 1 to a maximum of 5 monitoring boreholes, 10-50 meters downstream of waste disposal facility, 2 to a	The Licence Holder may have to amend the existing monitoring programme to adhere to all the conditions as presented in this Section (Conditions 3.1-3.19). GPT has been appointed to assess the WUL in terms of the current groundwater monitoring programme and determine whether amendments are required. A risk assessment was undertaken by GPT during 2016. . This licence has been recently issued and the Licence Holder is in process of addressing this condition. Ongoing numerical models are undertaken by the mine.	Updated numerical model of the predicted groundwater drawdown resulting from mining of the Village Pit at Beeshoek Mine, July 2017 Integrated Water and Waste Management Plan (IWWMP), 2017	**2**	**3**	GPT or another suitably qualified geohydrological company must be appointed to undertake the necessary risk assessments.	SHEQ Department

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
	maximum of 5 at 50 to 500 meters of Ore discards and 1 to 6 boreholes in Mine impounded areas.		GPT Critical Evaluation of the Groundwater Quality Monitoring Network at Beeshoek Mine and the development of Groundwater Related EMPs, April 2016 Proof of submission of the Risk Assessment Report, August 2019				
3.18	The Licensee is to conduct a geohydrological assessment to ascertain the natural groundwater quality in terms of Nitrates, Barium and Manganese as these have been identified as constituents of concern. The cumulative impacts of such shall also be determined and mitigation measures proposed. This shall be finalised and submitted to the Department for approval within six (6) of licence issuance.	A study in this regard has been completed by GPT during March 2019 and submitted to the DWS in June 2019.	Contaminant Assessment, March 2019 Proof of submission, June 2019	**3**	**3**	No recommendations.	-
3.19	Groundwater model must be calibrated as more information becomes available. This will add significant value in terms of groundwater management and better understanding of the aquifer behaviour. The model shall be updated on a biennial basis and submitted to the Department on a biennial basis.	An updated numerical model has been compiled by GPT for specifically the Village Pit and BN Pit operations. This model has been submitted to the DWS as part of the IWWMP, 2017. Another model is currently being compiled for the new EIA process and will be submitted to the DWS.	Updated numerical model of the predicted groundwater drawdown resulting from mining of the Village Pit at Beeshoek Mine, July 2017	**3**	**3**	No recommendations.	-
4	**INCIDENT MONITORING**						

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
4,1	Emergency incidents must be dealt with in accordance with the requirements as stipulated in Appendix I	An Emergency Preparedness and Response Plan is present on site. According the Landfill EA Internal Audit, the mine has an emergency procedure that it complies to. In addition, environmental emergencies are addressed in a separate document. Incident reporting thresholds have been set and plans to address these are in place on site. Incidents are also captured on an overview sheet and on the mine's IsoMetrix system.	Standard Procedures-Technical Services: SHERQ Environmental Emergency Preparedness and Response SP_TEC_18122017_13913 Non-conformity/ Accident Overview sheet, provided on 4 October 2018	**3**	**3**	No recommendations.	-
4,3	If the emergency incident results in pollution of water resources, the Licensee must monitor the water quality and on incident report must be submitted to the Provincial Head within 14 days of the incident.	The Licence Holder is aware of this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-
5	**WATER RESOURCE PROTECTION**						
5.1	The impact of the activities of the mine wastewater quality containment facilities shall not exceed the groundwater quality chemistry detailed in Table 5 in the water quality Reserve for the area.	Generally, the groundwater resources at all the sampling localities are described as being neutral to alkaline, saline and the hardness can be classified as hard to very hard. None of the variables listed in the IWUL Groundwater Resource (Table 5 – Appendix IV of the IWUL) exceed the specified limits at any of the sampled localities. The Nitrate (NO_3) concentration at WG34, WG37, WG62, WG70 and WG74 did exceed the permissible limit of 10mg/l set out by the then Department of Water Affairs and Forestry (DWAF, now DWS) Quality of Domestic Water Supplies.	Aquatico April 2019 Water Quality Report	**3**	**3**	No recommendations.	
5.2	It is evident from the report that the mine is situated in a dolomitic area. Dolomite aquifers are known to be highly vulnerable to pollution and difficult to remediate. There is possibility of sinkholes and cavities development, therefore; dolomite instability must be investigated, and a dolomite risk management plan must be established within one	The Licence Holder is aware of this condition. This study is currently in progress and has not been completed.	Site observations	**1**	**3**	1. The Dolomitic Study must be completed and submitted to the DWS. If additional time is required, the Licence Holder should communicate this with the DWS and obtain written approval.	SHEQ Department.

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
	(1) year of issuance of this licence.						
6	**REPORTING**						
6,1	The Licensee shall update the water and salt 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.	Compliant. A Water and Salt Balance have been developed and has been submitted to the DWS. A subsequent Water Balance is currently being developed for submission to the DWS.	Water and Salt Balance, Draft July 2019	**3**	**3**	No recommendations.	-
6,2	The Licensee shall compile an Annual Monitoring Report and submit it to the Provincial Head within eighteen (18) months after issuance of this licence and annually thereafter under Reference number 27/2/2/D173/6/1. This must be accompanied by the interpretation of results of analysis.	The water monitoring programme conducted at the mine is undertaken on a quarterly (groundwater). This includes potable water, process water and groundwater monitoring points. Quarterly groundwater monitoring reports are being compiled by Aquatico. The reports are submitted to the DWS, with proof available on site quarterly. The Licence Holder may have to amend the existing monitoring programme to adhere to all the conditions as presented in this Section (Conditions 3.1-3.19). GPT has been appointed to assess the WUL in terms of the current groundwater monitoring programme and determine whether amendments are required.	Aquatico April 2019 Water Quality Report. DWS Letter of Acknowledgement, June 2019	**3**	**3**	Changes to the monitoring network must be undertaken with the approval from the DWS. It is important for the Licence Holder to submit a monitoring protocol detailing the location of groundwater and surface water monitoring points, constituents to be monitored, as well as the frequency. This programme must be submitted to the DMR and DWS for signoff. A programme should be developed to inform the Licence Holder proactively of any legal reporting requirements.	SHEQ Department
7	**STORMWATER MANAGEMENT**						
7,1	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	Storm Water Management Measures are available, specifically downgradient of the Plant area. The drainage channels to the sumps to the north of the railway line, collecting all runoff from the Plant has recently been cleaned. Other concerns observed in terms of storm water management around the mining activities in the mining area, but specifically the Plant area, include: • At the Jig Plant, overflow from the area where pumps are located were observed. The pumps were operating, however there are no specific and effective bund	2017 & 2018 External Performance Assessment	**0**	**3**	Storm water management measures are recommended to be implemented to manage water in the specific areas in and around the Plant area, for instance downgradient of the Jig Plant, Thickener, Clarifier, around the Sculpting, buffing and screening area and also at the North Vehicle	SHEQ, Engineering and Production Departments

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
	which is produced, used, stored, dumped or spilled on the premises.	present and the area cannot accommodate the volumes of water. Water is discharging on open ground forming gulleys and then enters into a sump from where water is channelled to the settling dams; water is however also discharging into an uncontained area. A pipe was also observed, where water is pumped from the Jig Plant into the uncontained area and no longer overflow. • A repeat finding from the 2017 & 2018 External Performance Assessment was observed at the Thickener and Clarifier system. Water around the pumps at the Thickener, which is channelled through a pipe into the open area around the Clarifier, is creating erosion on the slopes, which is already visible from the road between the Thickener and the Clarifier. This has resulted in the area around the Clarifier being a wet marshy area. A berm has been placed around the Clarifier to contain water, but water is still running off beyond this berm. The pump at the Clarifier seems not to be capable of managing the volumes of water present. Four new water tanks area planned in this area. Water runoff forms gulleys and reports to a sump downgradient which connects to the downgradient settlers. • At the sculpting, buffing and screening area, the bund wall is broken (a hole is present) which allows water to discharge through an informal, unlined channel towards a downgradient sump. Weeds are also present in this channel. The Wash and Screen sump receives water from the downgradient settlers. This sump is not formally bunded and highly silted. It is not clear whether the pump can operate with the volume of silt present. Leaks from the upgradient valves are present and also reporting water to this sump area. • At the North TMM Workshop, when following the channel around the workshop the same finding as before (2018 Performance Assessment) was made - at the workshop discharge pipe near the railway line, water was present during the site visit indicating that discharge is taking place. • At the North TMM Workshop, a circular area is present in the eastern portion of the workshop (east of the skips) which is not surfaced. Breakdown vehicles and a diesel tank are stored here, and spills are present. At the tank, the use of absorbents was observed. The absorbents used here were however not for the purpose of soils remediation, but rather for hard surfaces and fluids, resulting in the absorbents being windblown. All of the above is contributing to the degrading of the integrity of the downgradient storm water management system. Another area of concern is at the North Mine Vehicle Workshop Area. The dirty water in this area drains from the north into an easterly channel, which discharges through a culvert into the Transnet Servitude. The mine has implemented action measures to improve the surfacing around the Workshop with orders in place. Although a large surfaced area is present, the dirty water from the Workshop is washed off with a pressure hose. There is no cut-off channel to capture the dirty water, which then runs into the uncontained area. A new Storm Water Dam North is currently being constructed. This facility should				Workshop. Measures are required to effectively channel stormwater in dirty water areas, to contain water in such dirty water areas and reuse this where possible to decrease the storm water runoff downgradient. The required storm water management measures around the North Workshop should be implemented. Roles and responsibilities for the maintenance of storm water channels at workshops and the Plant area should be formalised. It is recommendation that measures be implemented to prohibit any uncontained discharges into the environment. If possible, this water should be reverted back to the mine's internal water management circuit.	

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
		assist in improving water management and containment around the plant. The mine is currently also constructing a silt trap upgradient of the Storm Water Dam North.					
7,2	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.	Downgradient of the Clarifier, erosion gulleys were observed. During the site visit significant overflows around the clarifier system was present and the sump and pump infrastructure were under water. There was no sign of overflow visible around the Clarifier, however upgradient of the system, erosion gulleys were present arising from the thickener area. The area around the Thickener was characterised with a muddy environment and erosion gulleys from either overflows or decanting from this system were evident. These overflow erosion gulleys were observed to flow from the thickener system, past the Clarifier into the Plant area. This practice mixes storm water and process water (GN704 contravention) and contributes to the silt accumulation throughout the plant system. At the Jig Plant, overflow from the area where pumps are located were observed. The pumps were operating, however there are no specific and effective bund present and the area cannot accommodate the volumes of water. Water is discharging on open ground forming gulleys and then enters into a sump from where water is channelled to the settling dams; water is however also discharging into an uncontained area. A pipe was also observed, where water is pumped from the Jig Plant into the uncontained area and no longer overflow. The walls to the north of the Landfill Site also indicated the presence of erosion gulleys due to storm water runoff.	Site observations	**0**	**3**	Storm water management measures are recommended to be implemented to manage water in the specific areas in and around the Plant area, for instance downgradient of the Jig Plant, Thickener, Clarifier, around the Sculpting, buffing and screening area and also at the North Vehicle Workshop. Measures are required to effectively channel stormwater in dirty water areas, to contain water in such dirty water areas and reuse this where possible to decrease the storm water runoff downgradient. The storm water channels and sumps north of the railway line should be cleaned and maintained on an ongoing schedule. Implementation of a storm water berm around the facility, or a suitable solution to divert water from the side walls of the Landfill Site.	Engineering and SHEQ Department
7,3	Storm water shall be diverted from the mine complex site and roads and shall be managed in such a manner as to disperse runoff and concentrating the storm water flow.	No areas of concern were observed around the boundary of the mine complex or the road systems.	Site observations	**3**	**3**	No recommendations.	-
7,4	Where necessary, works must be constructed to attenuate the velocity of any storm water discharge and to protect the banks of the affected watercourses.	No discharges are taking place from site into watercourses.	Site observations	**3**	**3**	No recommendations.	-
7,5	Storm water control works must be constructed, operated and maintained in a	Storm water management measures are available specifically for the area downgradient of the Plant area. The drainage channels to the sumps to the north of the railway line, collecting all run off from the plant was recently been cleaned.	Site observations	**Dup**	**Dup**	No further recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
	sustainable manner throughout the impacted area.	Other concerns observed in terms of storm water management around the mining activities in the mining area, but specifically the Plant area, include: • At the Jig Plant, overflow from the area where pumps are located were observed. At the Jig Plant, overflow from the area where pumps are located were observed. The pumps were operating, however there are no specific and effective bund present and the area cannot accommodate the volumes of water. Water is discharging on open ground forming gulleys and then enters into a sump from where water is channelled to the settling dams; water is however also discharging into an uncontained area. A pipe was also observed, where water is pumped from the Jig Plant into the uncontained area and no longer overflow. • A repeat finding from the 2017 & 2018 External Performance Assessment was observed at the Thickener and Clarifier system. Water around the pumps at the Thickener, which is channelled through a pipe into the open area around the Clarifier, is creating erosion on the slopes, which is already visible from the road between the Thickener and the Clarifier. This has resulted in the area around the Clarifier being a wet marshy area. A berm has been placed around the Clarifier to contain water, but water is still running off beyond this berm. The pump at the Clarifier seems not to be capable of managing the volumes of water present. Four new water tanks area planned in this area. Water runoff forms gulleys and reports to a sump downgradient which connects to the downgradient settlers. • At the sculpting, buffing and screening area, the bund wall is broken (a hole is present) which allows water to discharge through an informal, unlined channel towards a downgradient sump. Weeds are also present in this channel. The Wash and Screen sump receives water from the downgradient settlers. This sump is not formally bunded and highly silted. It is not clear whether the pump can operate with the volume of silt present. Leaks from the upgradient valves are present and also reporting water to this sump area. • At the North TMM Workshop, when following the channel around the workshop the same finding as before (2018 External Performance Assessment) was made - at the workshop discharge pipe near the railway line, water was present during the site visit indicating that discharge is taking place. • At the North TMM Workshop, a circular area is present in the eastern portion of the workshop (east of the skips) which is not surfaced. Breakdown vehicles and a diesel tank are stored here, and spills are present. At the tank, the use of absorbents was observed. The absorbents used here were however not for the purpose of soils remediation, but rather for hard surfaces and fluids, resulting in the absorbents being windblown. All of the above is contributing to the degrading of the integrity of the downgradient storm water management system. Another area of concern is at the North Mine Vehicle Workshop Area. The dirty water in this area drains from the north into an easterly channel, which discharges through a culvert into the Transnet Servitude. The mine has implemented action measures to improve the surfacing around the Workshop with orders in place.					

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
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		Although a large surfaced area is present, the dirty water from the Workshop is washed off with a pressure hose. There is no cut-off channel to capture the dirty water, which then runs into the uncontained area. A new Storm Water Dam North is currently being constructed This facility should assist in improving water management and containment around the Plant. The mine is currently also constructing a silt trap upgradient of the Storm Water Dam North.					
7,6	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.	Channels and trapezoidal drains have been designed to the north of the railway line, leading to the sumps. The remainder of the trenches on site are small informal earth channels. Various areas around the Plant (downgradient of the Jig Plant, Clarifier, Thickener at the Wash and Screen Plant sump) may require formal water channels.	Site observations	**0**	**3**	The storm water management plan and GN704 audit recommendations should be implemented. Storm water management measures are recommended to be implemented to manage water in the specific areas in and around the Plant area, for instance downgradient of the Jig Plant, Thickener, Clarifier, around the Sculpting, buffing and screening area and also at the North Vehicle Workshop. Measures are required to effectively channel stormwater in dirty water areas, to contain water in such dirty water areas and reuse this where possible to decrease the storm water runoff downgradient. The inclusion of channels from the Thickener, the Clarifier, to the Wash and Screen Plant and then to the sumps, should be investigated.	SHEQ and Engineering Departments
7.7	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 Integrated Water Use License Application Report.	At the Jig Plant, overflow from the area where pumps are located were observed. At the Jig Plant, overflow from the area where pumps are located were observed. The pumps were operating, however there are no specific and effective bund present and the area cannot accommodate the volumes of water. Water is discharging on open ground forming gulleys and then enters into a sump from where water is channelled to the settling dams; water is however also discharging into an uncontained area. A pipe was also observed, where water is pumped from the Jig Plant into the uncontained area and no longer overflow. Water around the pumps at the Thickener, which is channelled through a pipe into the open area around the Clarifier, is creating erosion on the slopes, which is already visible from the road between the Thickener and the Clarifier. This has resulted in the area around the Clarifier being a wet marshy area. A berm has been placed around the Clarifier to contain water, but water is still running off beyond this berm. The pump at the Clarifier seems not to be capable of managing the volumes of water	Site observations	**0**	**3**	The capacity and likely the operational procedures (i.e. potential decant of the Thickener during shutdown and/or maintenance periods) of the containment facilities at the Plant area should be investigated to avoid overflows during maintenance schedules and should be undertaken in line with the current storm water management plan. Storm water management measures are recommended to be implemented to manage water in the specific areas in and around the Plant area, for instance	SHEQ and Engineering Departments

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
		present. Four new water tanks area planned in this area. Water runoff forms gulleys and reports to a sump downgradient which connects to the downgradient settlers.				downgradient of the Jig Plant, Thickener, Clarifier, around the Sculpting, buffing and screening area and also at the North Vehicle Workshop. Measures are required to effectively channel stormwater in dirty water areas, to contain water in such dirty water areas and reuse this where possible to decrease the storm water runoff downgradient.	
7.8	The polluted storm water captured in the storm water control dams shall be pumped to the process water treatment plant for re-use and recycling.	No specific water treatment plant is present on site. It is assumed that this condition refers to the clarifier and thickener systems, where the slimes are settled and pumped to the Slimes Dam and the "clean" water reused in the site.	Site observations	**3**	**3**	No recommendations.	-
8	**PLANT AREAS AND CONVEYANCES**						
8,1	Pollution cause by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all stream crossings	No areas of concern were observed.	Site observations	**3**	**3**	No recommendations.	-
8,2	All reagent storage tanks, and reaction must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system. The system shall be maintained in a state of good repair and standby pumps must be provided.	Overall the mine is effectively managing hydrocarbon spills. Bund walls for hazardous waste containment has been surveyed and each bund in labelled in terms of its capacity. During the site visit the following observations were made: • South Mine Primary Crusher: At the hydraulic oil bund spills were noted on the outside of the bunded area and over the sides of the bund wall. This area is not contained, and any spills will fall to the lower levels where the conveyor exists the crusher. This latter area is contained, with a sump present. • South Old Oil Storage: As per the previous 2018 audit, the outlet pipe where old oils are pumped from the tanks is not located in a bunded area, and the presence of spills were observed. A bunded area should be constructed around this area. • North Primary Crusher Workshop: Various oil (Total) drums present in this area, but not in bunded areas. Bunded areas are available in this area but not used. • Salvage Yard: 1) A surfaced area for skips has been constructed. 2) A plan is in place to undertake formal sorting in this area – space for such separation will have to be created. 3) At the roofed bunded area, some diesel drums are stored on drum carriers but not in the contained area. 4) The furthest right bunded area surface area is broken with paint containers stored in this area. • North TMM Workshop: A circular area is present on the eastern portion of the	Site observations	**1**	**3**	Areas where hazardous waste or reagent storage tanks/hazardous materials are handled should be contained. Spill kits should be available in all areas and be labelled in a manner to inform the user whether this is for hard surfaces, water spills or sand. Training on all new absorbent materials should be provided.	SHEQ Department

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LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
		Workshop (east of the skips) which is not surfaced. Breakdown vehicles and a diesel tank are stored here, and spills are present. At the tank, the use of absorbents was present. The absorbents used here were however not for the purpose of soils remediation, but rather for hard surfaces and fluids, resulting in the absorbents being windblown.					
8,3	Any hazardous substances must be handled according to the relevant legislation relating to the transport, storage and use of the substance.	Overall general waste and environmental management at the Storm Water Dam North can be commended, with no areas of concern observed. All areas are clearly demarcated, and waste management practices are in place. When considering the overall integrated Waste Management Procedure implemented at the mine, the following was found. A waste management strategy is in place on site, with three (3) Waste Management Procedures available on site, of which the last two procedures listed are still in draft format: * Waste Management Procedure; * Waste Management Service Provider Procedure; and * Landfill Site Management Procedure. General Waste Removal and Disposal: Interwaste (Pty) Ltd (Interwaste) removes all material from the mine to the Beeshoek' domestic Landfill Site. The Landfill Site Permit states that it can receive garden waste, which is believed to be an administrative error, and should be rectified to fulfil the purposes of the mine. The mine has consulted with the Northern Cape Department of Environment and Nature Conservation (NCDENC) whereby it was agreed that the reference to "rubble" encompasses all domestic waste as well. This was confirmed by the NCDENC via email. All hazardous material is remove to Holfontein Hazardous Waste Disposal Facility (Holfontein) by Interwaste. All used oils are removed by Olegra Oil (Pty) Ltd (Olegra) to PPC Lime Acres. According to an assessment at a neighbouring mine this facility is permitted (Limeacres AEL Licence: 23/4/2/58). This permit is not available at Beeshoek Mine. The following key observed were made: * An internal audit has been undertaken on the Environmental Authorisation of the Beeshoek Landfill Site WML; * Interwaste GLB+ Landfill Site WML (FG Landfill Site) (original and amendment): Reference Gaut 006/12-13/W0003 (December 2012). The original WML was issued on 20 November 2011 . Condition 3.1(h) of the WML states that the WML must be renewed within a period for four years from the date of issue (no proof thereof is available). * Interwaste Germiston Depot H:H Waste Storage and Treatment Facility. This permit is still valid. * Interwaste Waste Transporter of General and Hazardous Waste. This permit is still valid.	Waste Management Service Provider Procedure Version 1.9 Standard Procedures-Technical Services: SHERQ Landfill Site Management Procedure SP_TEC_03102018_14484 Waste Management Procedure dated 5 June 2018 Version 1.9 Site observations Waste Management Procedure: Ref SP_TEC_21022017_11908 Version 2, 21 February 2017 Email communication between the mine and the NCDENC dated 27 August 2019. Beeshoek Internal WML Audit, May 2019 GLB+ Landfill Site WML (FG Landfill Site) (original and amendment): Reference Gaut 006/12-13/W0003 (November 2011 and December 2012) Interwaste Germiston Depot H:H Waste Storage and Treatment Facility, Ref: 12/9/11/P/P99, dated 16	**3**	**3**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
		* Integrated Environmental Authorisation for Interwaste facility - Klinkerstene Ref: 17/04/A18/MP311/10/01 for the GLB+ class waste facility. Condition 5.12.10 of this Environmental Authorisation states that the Environmental Authorisation is valid for a period of 30 years and the holder must initiate a review process 5 years from the date of issue (27 May 2013). No proof that the review process has been initiated by the supplier is available on record to ensure the mine's duty of care. * Olegra is registered as an accredited Oil Collector by the Recycling Oil Saves the Environment (ROSE) Foundation with the registration number RF025171 . Note that this registration will lapse at the end of August 2019. * PPC Lime Acres is registered as an accredited Oil Processor by the ROSE Foundation with the Registration number RF 025185,. Note that this registration will lapse at the end of August 2019.	March 2009 Interwaste Waste Transporter Registration Ref: GPT-00-030 (valid until 3 May 2020) Integrated Environmental Authorisation for Interwaste facility - Klinkerstene Ref: 17/04/A18/MP311/10/01 for the GLB+ class waste facility, dated 27 May 2013. Olegra oil collector registration, Ref: RF025171, valid until 31 August 2019 PPC Lime Acres oil processor registration, Ref: RF025185, valid until 31 August 2019				
8,4	Any access roads or temporary crossings must be:	No areas of concern were observed around the access roads. No temporary crossings are present.	Site observations	**3**	**3**	No further recommendations.	-
8.4.1	Non-erosive, structurally stable and must not include any flooding or safety hazard and						
8.4.2	Be repaired immediately to prevent further damage						
9	**ACESS CONTROL**						
9,1	Strict access procedures must be followed in order to gain access to the property.	Compliant. Strict access control is implemented on site. One can only enter the site through the security-controlled access gate.	Site observations.	**3**	**3**	No recommendations.	-
9.2	Access to the pollution control dams, waste rock dumps, bio-remediation facility, storm water dam and return water dam (including all waste management facilities listed in Table 4) must be limited to authorised	Strict access control is implemented on site.	Site observations.	**3**	**3**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
	employees of the Licensee and their contractors only.						
9.3	Notices prohibiting unauthorised persons from entering the controlled access 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.	Strict access control is implemented on site. One can only enter the site through the security-controlled access gate. Notices are in place.	Site observations.	**3**	**3**	No recommendations.	-
10	**CONTINGENCIES**						
10,1	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:	An Emergency Preparedness and Response Plan is present on site. This plan does not make provision for the management of emergencies at the landfill as required for in this condition. For example, flooding is included, but for operational measures (pit flooding, dams/water containment, storm water flooding, thickener and slimes dam). In terms of the Landfill, emergencies such as a loss of supply services (no equipment to manage or maintain the facility) are not considered, neither is the collapsing of the high wall at the Landfill Site which could result in risks. Incidents are also captured on an overview sheet and on the mine's IsoMetrix system. SCADA systems are also in place to monitor the operational circuit.	Emergency Preparedness and Response Plan, 17 August 2017 (review date 17 August 2019) Environmental Emergency Preparedness and Response Plan, 12 January 2018 (review date 26 March 2020)	**3**	**3**	It is recommended that the Emergency Preparedness and Response Plan be updated to make provision for emergencies which could result from the Landfill Site and associated operations.	SHEQ Department
10.1.1	Operating Errors						
10.1.2	Mechanical failures (including design, installation or maintenance)						
10.1.3	Environmental factors (e.g. flood)						
10.1.4	Loss of supply services (e.g. power failure).						
10.1.5	Other causes						
10,2	The Licensee must, within 24 hours, notify the Regional Head of the occurrence or potential	The Licence Holder is aware of this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
	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						
10,3	The Licensee must, within 14 days, or a shorter period of time, as specified by the regional Head, from the occurrence or detection of an incident referred above, submit an action plan which must include a detailed time schedule, to the satisfaction of the Regional Head of measures taken to:	The Licence Holder is aware of this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-
10.3.1	Correct the impacts resulting from the incident.						
10.3.2	Prevent the incident from causing any further impacts.						
10.3.3	Prevent a recurrence of a similar incident.						
11	**INTEGRATED WATER AND WASTEWATER MANAGEMENT**						
11,1	8.1 Integrated Water and Waste Management Plan (IWWMP) and Rehabilitation Strategy and Implementation Programme (RSIP) shall be updated and submitted to the Provincial Head for approval, annually.	An IWWMP was submitted to the DWS during May 2016. This report is was again updated in 2017. Proof of submission of the IWWMP is available. An IWWMP is updated in line with the WUL 2018 for submission to the DWS.	IWWMP, 2016 IWWMP Report, December 2017 Email from EnviroGistics to Philani Msimango dated 13 February 2018 and Courier Tracking dated 9 February 2018	**3**	**3**	No recommendations.	-
11,2	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	The Licence Holder is aware of this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
	intention and submit any final amendments of the IWWMP and RSIP as well as a final Closure Plan, for approval.						
11,3	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.	Compliant. The mine has a fully updated financial provision in place for all infrastructure (including historical facilities on site).	Final Rehabilitation Plan, May 2019	**3**	**3**	No recommendations.	-
12	**WATER CONCERVATION AND DEMAND MANAGEMENT (WC/WDM)**						
12,1	Licensee shall develop and submit a water conservation and demand management (WC/WDM) plan to the Provincial Head, which	A WCDMP was developed by Irene Lea from Irene Lea Environmental and Hydrogeology cc (ILEH) during November 2017. This document was submitted with the 2017 IWWMP. Proof of submission of the WCDMP is available. A subsequent WCDMP is currently being compiled for submission to the DWS, it is planned to submit this report in October 2019. No WCDMP was undertaken during 2018 as the WULA was still being considered by the DWS, which contained the IWWMP and WCDMP.	IWWMP, December 2017 Proof of submission, 14 June 2018 2019 Draft WCDMP	**3**	**3**	Strong emphasis should be placed on the implementation of the WCDMP once completed.	SHEQ and Engineering Departments
12.1.1	quantify the water use efficiency of the activity;						
12.1.2	contains the mine water management and water loss strategies and programmes;						
12.1.3	sets annual targets for improved water use efficiency for the mining activity, beneficiation and waste disposal practices and stipulates which measures will be implemented to achieve the targets on the mine;						
12,2	Licensee shall update the WC/WDM plan on an annually basis and submit to the Provincial Head for approval.		Site observations	**T/N**	**T/N**	The updated IWWMP and WCDMP must be submitted to the DWS annually.	SHEQ Department
12,3	Licensee shall report on annually basis the implementation of water		Site observations	**T/N**	**T/N**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
	LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)						
	conservation and water demand management measures including retrofitting with water efficient technologies and devices, reduction of total water demand, improvement in water use efficiency benchmarks and targets.						
	APPENDIX V - Section 21 (j) of the Act: Removing, discharging or disposing of water found underground if it is necessary for the continuation of an activity or for safety of people.						
1	**REMOVING WATER FOUND UNDERGROUND**						
1.1	The Licensee is authorised to remove a total volume of three million two hundred and ninety thousand three hundred and eight cubic metres per annum (3 290 308 m^3/a) of water found underground from the various boreholes and open pits as indicated in Table 6.	Compliant. When considering the Monthly Water Reports for the period July 2018 to June 2019 an amount of 2 086 805m^3 has been abstracted from the boreholes (supply). In-pit dewatering amounted to 585 405m^3 for this period.	June 2019 Monthly Water Quality Reports.	**3**	**3**	No recommendations.	-
1.2	The Licensee must provide any water user whose water supply is impacted by the water use with domestic water.	The Licence Holder is aware of this condition.	Site observations	**T/N**	**T/N**	No recommendations.	-
1.3	The quantity of water removed underground must be metered and recorded daily.	Water taken is manually captured daily, and an action plan is in place to implement automatic flow meters as presented before. Water taken is presented in the Monthly Water Report as monthly intervals, but the daily volumes are also available.	Weekly dewatering report; Monthly Water Report June 2019	**3**	**3**	No recommendations.	-
1.4	The groundwater levels shall be monitored every month and reports submitted on a quarterly basis	Monthly water levels are taken at groundwater boreholes by the mine. Quarterly reports are submitted to the DWS. An updated numerical model has been compiled by GPT for specifically the Village Pit and BN Pit operations.	Aquatico April 2019 Report Proof of submission, June 2019	**3**	**3**	No recommendations.	-
1.5	No more water shall be removed for dewatering than the minimum required for effective dewatering.	Compliant. The Licence Holder is aware of this condition.	Site Observations Monthly Water Report, June 2019	**3**	**3**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
1.6	Self-registering flow metres must be installed in the delivery lines at easily accessible positions near the points of abstraction/dewatering	Constraints have been experienced in the past in terms of understanding the flow and volumes of flow within the water management circuit, as only manual readings were available. This presented a constraint as it does not allow the readings to reflect during the same time of the day. A new flow meter replacement project has been initiated on site. Automatic (self-registering) flow meters have been implemented in some of the areas, with the project of replacement still ongoing. According to the monthly water monitoring report, June 2019, only 4 of the 12 required in the past audit report, flow meters are still required.	Monthly Water Report, June Version 1.3	**3**	**3**	No recommendations.	-
1.7	The Licensee must routinely check if the pumps are in a working order. A contingency plan should be in place in cases of failure of pumps.	A water management database is being managed and updated monthly by the SHEQ Department. A detailed water management and monitoring system is also managed by the Engineering Department. Weekly checks are undertaken by the Engineering Department.	Site observations	**3**	**3**	No recommendations.	-
1.8	The Responsible Authority must be informed of any incident that may lead to groundwater being disposed of contrary to the provisions of this Licence, by submitting a report containing the following information:	No incidents were recorded for the past year.	Site observations	**T/N**	**T/N**	No recommendations.	-
1.8.1	Nature of incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc.)						
1.8.2	Actions taken to rectify the situation and to prevent pollution or any other damage to the environment						
1.8.3	Measures to be taken to prevent re-occurrence of any similar incident.						
1.9	The Licensee must follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the	According to the Licence Holder people are appointed specifically for dewatering. These parties are working as per mining shifts and are responsible to monitor the mobile pumps in the pits that is used for pit dewatering. The Licence Holder further has a SCADA system which are being monitored daily. It indicates flow rates and drive motor statuses of all the major pump stations and boreholes. It also indicates the dewatering flow rates out of the pits.	Email, 28 August 2019	**3**	**3**	No recommendations.	-

		Observation	Sources	Actual score	Max score	Recommendations	Responsibility
LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT. 1998 (ACT NO 36 OF 1998) (THE ACT) LICENCE NO: 10/D73A/ABGJ/2592 (21 August 2018)							
	groundwater removal system.	Employees are also on standby which can attend to any breakdowns on the water system after hours.					
1.10	Reasonable measure must be taken to provide for mechanical, electrical or operation failures and malfunctions of the underground water removal system.	In addition to the above, volume flow rates are being monitored daily to check for any deviations which may lead to possible failures. Condition monitoring on pumps and motors (excluding borehole pumps) are being done on a monthly basis by an external service provider. Monthly water meetings where volume flow rates are discussed. Concerns are being raised in these meetings if there is any.	Email, 28 August 2019	**3**	**3**	No recommendations.	-

5 KEY FINDINGS AND RECOMMENDATIONS

The following sections are provided as a very concise summary of the key observations on site and should be assessed in combination of the Assessment Table presented in Section 4.

5.1 Assumptions and Gaps

The findings, results, observations, conclusions and recommendations given in this Report are based on the Author' best scientific and professional knowledge as well as available information. As many areas were assessed during the audit as possible and all available documents were considered. However, it should be noted that in order to assess the project in the time allowed, spot checks were conducted.

5.2 Key Findings and Recommendations

The key findings observed, which should receive attention on the mine, are included in the section below. Please take note that not all findings have been presented here. For the complete list of findings please refer to the table presented in Section 4. It is important that the Licence Holder familiarise themselves with the recommendations as presented in the table presented in Section 4.

5.2.1 Performance Assessment Findings

The following lists key observations requiring attention on site:

1. Water Management
    a. Some concerns observed during the site visit include:
        i. At the Jig Plant, overflows from the area where the pumps are located were observed. The pumps operating, however there are no specific, effective bund present and the area cannot accommodate the volumes of water. Water is discharging on open ground forming gulleys and then enters into a sump from where water is channelled to the settling dams; water is however also discharging into an uncontained area. A pipe was also observed, where water is pumped from the Jig Plant into the uncontained area and no longer overflow.
        ii. A repeat finding from the previous two years (2017 and 2018) was observed at the Thickener and Clarifier system. Water around the pumps at the Thickener, which is channelled through a pipe into the open area around the Clarifier, is creating erosion on the slopes, which is already visible from the road between the Thickener and the Clarifier. This has resulted in the area around the Clarifier being a wet marshy area. A berm has been placed around the Clarifier to contain water, but water is still running off beyond this berm. The pump at the Clarifier seems not to be capable of managing the volumes of water present. Four new water tanks area planned in this area. Water runoff forms gulleys and reports to a sump downgradient which connects to the downgradient settlers.
        iii. At the sculpting, buffing and screening area, the bund wall is broken (a hole is present) which allows water to discharge through an informal, unlined channel towards a downgradient sump. Weeds are also present in this channel. The Wash and Screen sump receives water from the downgradient settlers. This sump is not formally bunded and highly silted. It is not clear whether the pump can operate with the volume of silt present. Leaks from the upgradient valves are present and also reporting water to this sump area.
        iv. At the North TMM Workshop, when following the channel around the workshop the same finding as for the 2018 External Performance Assessment was made - at the

workshop discharge pipe near the railway line, water was present during the site visit indicating that discharge is taking place.

2. Waste Rock Disposal
    a. In terms of the Disposal Volumes:
        i. The only stockpiles were disposal is currently taking place are on the ROM Stockpiles, HF Waste Rock Dump (WRD), Village WRD, East Pit WRD and the GF WRD.
        ii. It should be noted that the HF WRD is not approved for disposal in terms of the WUL.
3. Water Monitoring
    a. at the current time all constituents are monitored with the exception of zinc.

5.3 Need to update the Licence

The mine is currently in the process of undertaking an application to amend the 2018 WUL to include the two fire water tanks, a new conservancy tank at the North Laundry, as well as to change the location of monitoring borehole from WG73 to WG70, as borehole WG73 has collapsed. In addition to this the WUL must be updated to provide clarification in terms of tons vs tones/annum.

A new EIA and WULA process is also underway to include proposed water uses, such as: 1) HF WRD, 2) HF Pit Dewatering (borehole WG63, WG51A and in-pit dewatering), 3) new tanks at the Clarifier, 4) new tank at BN Pit and 5) depending on the outcomes of the numerical model, changes to dewatering requirements, such as the inclusion of the Zinc and Steel dams.

5.4 Overall Opinion

During the project initiation meeting it was clear that the Licence Holder had an understanding of the conditions of the WUL. Various measures are yet to be implemented by the Licence Holder based on the additional specialist requirements issued as part of this WUL. The Licence Holder is however in process with addressing these and specialists are appointed. Where additional time is required to address these conditions, written approval from the DWS should be sourced.

Representatives from the SHEQ Department, as well as the Engineering Department attended the site visit and was informed on the history and status of the WUL process, as well as constraints encountered and the reasons for the amendments. The Licence Holder presented a view of overall commitment to achieve compliance in terms of the environmental legislation.

5.5 Declaration of EAP

I, **Tanja Bekker** (Name of person representing EAP) of **EnviroGistics (Pty) Ltd** (name of company) declare that;

1. I act as the independent environmental practitioner in this audit
2. I have performed the work relating to this audit in an objective manner, even if this results in views and findings that are not favourable to the Licence Holder;
3. I declare that there are no circumstances that may compromise my objectivity in performing such work;
4. I have expertise in conducting environmental performance assessment, including knowledge of the Act, regulations and any guidelines that have relevance to the activity;
5. I have no, and will not engage in, conflicting interests in the undertaking of the audit;
6. I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the Licence Holder or not
7. all the particulars furnished by me in this form are true and correct;
8. will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
9. I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 49B (2) of the Act.

Signature of the Environmental Assessment Practitioner

Date: 17 October 2019