

Khumani Iron Ore Mine

2019 Annual Environmental Audit in terms of the Mineral and Petroleum Resources Development Act, 2002 and the National Environmental Management Act, 1998 as well as the recommended Regulation 34 amendments in terms of NEMA, 1998



Report Purpose

Providing the client and Regulatory Authority with an understanding of the environmental compliance in terms of the relevant Environmental Authorisations and Environmental Management Programmes

To address any potential amendments to the Environmental Authorisations and/or Environmental Management Programmes (EMPr's) through Regulation 34 of the Environmental Impact Assessment Regulations, 2014.

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KHUMANI IRON ORE MINE: 2019 MPRDA AND NEMA ENVIRONMENTAL AUDIT

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1 INTRODUCTION AND TERMS OF REFERENCE

1.1 Purpose of the Report

The purpose of this Performance Assessment is **three-fold**:

Firstly, in terms of the Mine's legal requirements an annual Environmental Audit is required in terms of the following legislation:

- Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA);
- National Environmental Management Act, 1998 [Act No. 107 of 1998) (NEMA) (including the Environment Conservation Act, 1989 (Act No. 73 of 1989 (ECA));
- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA) (only to be audited in 2021 again); and
- National Water Act, 1998 (Act No. 36 of 1998) (NWA).

Since the MPRDA and NEMA authorisations and Environmental Management Plans/ Programmes (EMPs/ EMPr's) are similar, the Environmental Audits have been combined (please refer to Section 1.4 for a list of the various authorisations on site).

The purpose of this report is to provide the client with feedback in terms of the EMP/ EMPr Compliance. According to the MPRDA, Regulation R527, Section 55 (1) and (2), an applicant of a mining right must undertake performance assessments either every two years or as stipulated in the Licence. The original 2007 Licence, in Condition 14 states that Environmental Audit Reports must be submitted annually; the 2007 Permit states in Condition 15, that Environmental Audit Reports must be submitted annually; Licence 2011, in Condition 7 states that Environmental Audit Reports must be undertaken every two years; and Licences 2012 and 2016 make no statement on Environmental Audits, with the 2018 Environmental Authorisation stating that the holder of the authorisation must appoint an independent auditor to audit the site bi-annually. This auditor must compile an environmental audit report documenting the findings of the audit.

The purpose of this report is also to provide the client with feedback in terms of the NEMA and ECA Permits (Permits 43/2006, 47/2009, 37/2012 and 56/2013). The 43/2006 Permit does not state any audit or Environmental Audit requirements, Permit 47/2009 states in Condition 28 that environmental audits must be submitted to the Department on request and be undertaken by an independent auditor, Permit 37/2012 states in Condition 14 that the applicant must carry out regular environmental audits to establish compliance and Permit 56/2013 also in Condition 14 states that the applicant must carry out regular environmental audits to establish compliance.

Regulation 54A of the newly amended 2014 EIA Regulations stipulates that where a right or permit issued in terms of the MPRDA or an authorisation issued in terms of the previous NEMA Regulations (and the associated Environmental Management Programme or Environmental Management Plan); is still in effect after 8 December 2014, the requirements contained in Part 3 of Chapter 5 of the 2014 EIA Regulations (i.e. the auditing provisions) apply to such Environmental Management Programmes or Environmental Management Plans **and the first environmental audit report must be submitted to the competent authority no later than 7 December 2019** and at least every 5 years thereafter for the period during which such right, permit, authorisation, Environmental Management Programme or Environmental Management Plan is still in effect. **Secondly**,

to give effect to the 2014 NEMA Environmental Impact Assessment (EIA) Regulations. Regulation 26 (1e) states that an environmental authorisation must specify the frequency of auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr, and where applicable the closure plan in order to determine whether such EMPr and closure plan continuously meet mitigation requirements and addresses environmental impacts, taking into account processes for such auditing prescribed in terms of these Regulations: provided that the frequency of the auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr may not exceed intervals of five years.



In terms of Section 34 of the 2014 NEMA EIA Regulations (as amended), the holder of an environmental authorisation (this now includes Approvals in terms of the NEMA and the ECA, and the MPRDA) must, for the period during which the environmental authorisation and EMPr, and where applicable the closure plan, remain valid-

- a) ensure that the compliance with the conditions of the environmental authorisation and the EMP, and where applicable the closure plan, is audited; and
- b) submit an environmental audit report to the relevant competent authority.

Thirdly, to list the identified amendments required for the Environmental Authorisations and/or EMPs/ EMPr's, as well as list the recommended Stakeholder Consultation Process to be followed, where applicable.

The following table presents the format of the audit report:

Table 1: Reference Table

#	Section	Requirements	Section in this Report
	34(2)	The environmental audit report contemplated in subregulation (1) must-	
1	34(2)(a)	be prepared by an independent person with the relevant environmental auditing expertise;	2.3
	34(2)(b)	provide verifiable findings, in a structured and systematic manner, on-	
2	34(2)(b)i	the level of performance against and compliance of an organization or project with the provisions of the requisite environmental authorisation or EMPr and, where applicable, the closure plan; and	5.3
3	3(2)(b)ii	the ability of the measures contained in the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity;	4, 5.2, 5.5
4	34(2)(c)	contain the information set out in Appendix 7; and	See this report
5	34(2)(d)	be conducted and submitted to the competent authority at intervals as indicated in the environmental authorisation.	1.1
	34(3)	The environmental audit report contemplated in subregulation (1) must determine-	
6	34(3)(a)	the ability of the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an ongoing basis and to sufficiently provide for the, avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and	4, 5.2, 5.5
7	34(3)(b)	the level of compliance with the provisions of environmental authorisation, EMPr and where applicable the closure plan.	5.3
	34(4)	Where the findings of the environmental audit report contemplated in subregulation (1) indicate-	
8	34(4)(a)	insufficient mitigation of environmental impacts associated with the undertaking of the activity; or	5.4, 5.5
9	34(4)(b)	insufficient levels of compliance with the environmental authorisation or EMPr and, where applicable the closure plan;	5.4, 5.5
10		the holder must, when submitting the environmental audit report to the competent authority in terms of subregulation (1), submit recommendations to amend the EMPr or closure plan in order to rectify the shortcomings identified in the environmental audit report.	Noted, see Section 4 for recommendations made by auditor.
11	34(5)	When submitting recommendation in terms of subregulation (4), such recommendations must have been subjected to a public participation process, which process has been agreed to by the competent authority and was appropriate to bring the proposed amendment of the EMPr and, where applicable the closure plan, to the attention of potential and registered interested and affected parties, including organs of state which have jurisdiction	5.7 – recommended to be undertaken in conjunction with new EIA Process scheduled for commissioning early 2020.



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#	Section	Requirements	Section in this Report
		in respect of any aspect of the relevant activity and the competent authority, for approval by the competent authority.	
12	34(6)	Within 7 days of the date of submission of an environmental audit report to the competent authority, the holder of an environmental authorisation must notify all potential and registered interested and affected parties of the submission of that report, and make such report immediately available-	Noted
13	34(6)(a)	to anyone on request; and	Noted
14	34(6)(b)	on a publicly accessible website, where the holder has such a website.	Noted
Appendix 7			
	3(1)	An environmental audit report prepared in terms of these Regulations must contain-	
15	3(1)(a)i	the independent person who prepared the environmental audit report; and	2.3
16	3(1)(a)ii	the expertise of independent person that compiled the environmental audit report;	2.3.2
17	3(1)(b)	a declaration that the independent auditor is independent in a form as may be specified by the competent authority specified by the competent authority;	5.9
18	3(1)(c)	an indication of the scope of, and the purpose for which, the environmental audit report was prepared;	1.1
19	3(1)(d)	a description of the methodology adopted in preparing the environmental audit report;	2.2
	3(1)(e)	an indication of the ability of the EMPr, and where applicable, the closure plan to-	
20	3(1)(e)i	sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis;	4, 5.2, 5.5
21	3(1)(e)ii	sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and	4, 5.2, 5.5
22	3(1)(e)iii	ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan;	4, 5.2, 5.3, 5.5
23	3(1)(f)	a description of any assumptions made, and any uncertainties or gaps in knowledge;	5.6
24	3(1)(g)	a description of any consultation process that was undertaken during the course of carrying out the environmental audit report;	5.7
25	3(1)(j)	a summary and copies of any comments that were received during any consultation process; and	Recommended to be undertaken in conjunction with new EIA Process scheduled for commissioning early 2020.
26	3(1)(k)	any other information requested by the competent authority.	Noted

The Environmental Audit is undertaken to determine the following:

- ☞ Compliance with conditions pertaining to the Record of Decision (ROD), Environmental Authorisations and EMPr approvals; and
- ☞ The appropriateness (adequacy) of the Environmental Authorisation to ensure that it covers all the activities and developments on-site and, in the process, to identify information required to update the EMPr if required.

The objectives of this Environmental Audit Report are to:

- ☞ Provide the management of the Mine, as well as the Department of Mineral Resources (DMR) with an understanding of the level of compliance towards the Environmental Authorisation; and
- ☞ Supply a basis for the initiation of corrective action.



1.2 Introduction

Khumani Iron Ore Mine (hereafter referred to as “Khumani” or “the Mine”), located near Kathu in the Northern Cape Province, is owned by Associated Manganese Mines of South Africa Limited (Assmang).

Khumani has an approved Mining Right, granted by the DMR obtained in January 2007 for mining activities associated with iron ore. Khumani comprises of four (4) farms, namely Parson, King, Bruce and portions of Mokaning.

The Mining Right is located over portions of the farms King, Bruce and Mokaning. The overall mining area, however, also includes the farm Parson, where the plant infrastructure, product- and low-grade stockpiles, explosives magazine and main offices are situated. The last-mentioned farm property does not form part of the Mining Right and therefore no mining activities are undertaken over this farm.

Construction activities at Khumani commenced during June 2006, with the environmental approval in terms of the ECA, while operational activities on the farm Bruce commenced during May 2007.

The mining infrastructure associated with each farm included in the Mining Right is detailed as follows:

Parson:

- Rapid Load-Out Facility;
- Product Stockpile Area;
- Run of Mine (ROM) Stockpile Area;
- Discard Stockpile (to be known as the Low-Grade Stockpile);
 - The Mine is currently in the process of undertaking an Environmental Authorisation Process to increase this facility in terms of its footprint, and to include additional infrastructure such as a Reclaiming Facility.
- Plant Area [Original Beneficiation Plant and the Wet, High-Intensity Magnetic Separation (WHIMS Plant)];
 - The Mine is currently in the process of undertaking an Environmental Authorisation Process to establish a second WHIMS Plant. During 2013 the Mine was awarded with approval for the establishment of another plant, namely the Off-Grade 2 Plant. This plant has not yet been constructed and for this reason, has not been included in this assessment.
- Plant Offices;
- Third Party Stockpile Area;
- Workshop Areas;
- Explosive Magazine (operated by Sasol Nitro);
- Sewage Facilities;
- Conveyors;
- Storm Water Management Infrastructure (channels and dam);
- Borrow Pits; and
- Contractor Workshop Areas.

Bruce:

- Primary Crusher;
- Secondary Crusher;
- Mine Workshops;
- Offices;
- Overland Conveyors;
- Sewage Facilities;
- Contractor Workshop Areas;
- Opencast Operations (five main opencast pits – BA05, BB01, BC01, BC02, BC03);
- Topsoil Stockpile;



- ☞ Barrier Pillar Mining operations;
- ☞ Panhandle Dump;
- ☞ Low-Grade ROM Stockpile [(Waste Rock Dump (WRD)); and
- ☞ Storm Water Management Infrastructure (channels and dam).

King/ Mokaning:

- ☞ Paste Disposal Facility;
- ☞ Topsoil Stockpile;
- ☞ Low-Grade ROM Stockpile;
- ☞ WRDs;
- ☞ Contractor Workshop Areas;
- ☞ Opencast Pits (two main opencast pits – KM01, KM02);
- ☞ Primary and Secondary Crusher;
- ☞ Sewerage Facilities;
- ☞ Transnet Freight Rail (TFR) Diversion has been completed and the decommissioned Port Elizabeth Railway Line is being dismantled;
- ☞ River Diversion associated with the TFR Diversion;
- ☞ Mine Workshops; and
- ☞ Offices.

Linear Activities Connecting the Farms Include:

- ☞ Conveyors;
- ☞ Roads; and
- ☞ Power lines.

The Mine has obtained approval for the construction and operation of the proposed Off-Grade 2 Plant. Construction of this facility has been placed on hold due to the current economic setting. The Licence lapsed during December 2016 and was not renewed.

1.3 Catchment Description

Khumani falls within the Lower Vaal Water Management Area (WMA). The area is situated in the catchment of the Gamagara River, the quaternary catchment being D41J. The site is located on gently sloping to hilly terrain with rivers flowing in a north-westerly direction. The major river traversing the site is the Gamagara River, which flows from the east to west, north of the Parson Plant area. The river then flows north to confluence with the Kuruman River.

Iron ore, diamonds and manganese are mined in the WMA. Farming activity ranges from extensive livestock production and rain fed cultivation to intensive irrigation enterprises at Vaalharts. Kimberley, which straddles the divide between the Lower Vaal and Upper Orange WMAs, is the largest urban centre in the area. More than 50% of the yield from natural water resources in the tributary catchments within the WMA is supplied from groundwater.

Within the region there are no significant dams on the Orange River. There are however various containment dams from which water for irrigation or urban settlement is diverted through canals. Examples of these are Boegoeberg Dam near Groblershoop and the Neusberg Dam near Kakamas. The Rooiberg Dam at Kenhardt is fed by the Hartbees River and is sometimes empty because of the inconsistency of the river flow. The Leeubos Dam in the Swartbees River is located in the northern parts of the region.

A bulk water supply scheme from the Vaal River to the arid areas of the Gamagara valley near Postmasburg and north thereof was implemented by the Department of Water and Sanitation (hereafter referred to as the "DWS") to supply potable water to these areas and thus to enable the development of the large scale mining operations in areas such as Beeshoek, Lime Acres, Sishen, Mamatwane, Hotazel and Blackrock.



1.4 Environmental Authorisations

The mine is operating with all required Environmental Authorisations in terms of the:

- ☞ NEMA and ECA;
- ☞ MPRDA; and
- ☞ NWA.

Environmental Authorisations obtained include the following:

- ☞ Permits:
 - NEMWA:
 - Permit 12/9/11/L812/8 for the Landfill Site and Hazardous Storage Facility
 - NWA:
 - Licence: 10/D41J/BC1J/2122 for the 2013 WUL
 - NEMA (and ECA):
 - Permit 43/2006 for the development of an iron ore opencast mine with all associated infrastructure
 - Permit 47/2009 for the Railway Line Diversion and Local Siding Establishment
 - Permit 37/2012 for the expansion of diesel storage and a silo for explosives, construction of a tar road and additional refuelling station, storm water dams and storage tanks
 - Permit 56/2013 for the Off-Grade 2 Plant (lapsed)
 - Permit 21/2016 for the construction of the WHIMS Plant at Parson, the Expansion of the Parson Discard Dump, Bruce Low-Grade ROM Stockpile and King/ Mokaning Low-Grade ROM Stockpile, and the establishment of additional Low-Grade Stockpiles at King
 - NC30/5/1/2/3/2/1(070)EM for the WHIMS Plant and silo project, 2018
 - MPRDA
 - MPRDA Record of Decision (ROD) 2007 for the new Mining Operation and associated EMP dated February 2006
 - MPRDA RODs – undated 2007 (document date of modification states August 2007) for the Barrier Pillar and associated EMP dated April 2007 (this EMP resulted in a change to certain commitments by the Mine since the original EMP)
 - MPRDA ROD 2011 for the additional infrastructure such the local siding in line with Permit 47/2009
 - MPRDA ROD 2012 for the additional infrastructure such as the diesel storage in line with Permit 37/2012



2 COMPLIANCE ASSESSMENT METHODOLOGY

2.1 Objective of the Environmental Audit

The objectives of this NEMA and MPRDA ROD, Environmental Authorisations and EMP/ EMPr and Environmental Audit Report are therefore to:

- Provide documentation concerning compliance in terms of the conditions as contained in the approved EMP/ EMPr's;
- Provide documentation concerning compliance in terms of the conditions as contained in the Environmental Authorisations of the legislation listed in Section 1.4;
- Provide the management of the Mine, the DMR, the Department of Environmental Affairs (DEA) (if required) and the 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 and potential amendments in terms of Regulation 34 of the NEMA.

2.2 Methodology

The following methodology was implemented to assess the compliance of the Khumani Mine to its Authorisations:

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

2.2.1 Gathering of Information

A list of information as required by the auditors was provided by Mrs. Durelle Carstens during the site visit. The following documents were reviewed by EnviroGistics (Pty) Ltd and consulted during the assessment:

- Environmental Authorisations/ Permits/ Licences as listed in Section 1.4.
- Chemical Water Analysis:
 - Up until June 2019.
- Water Use and Waste Material Production Volumes:
 - Volumes of Waste Rock and Paste Disposed – Consumption Report 2019.
- Water Abstraction Volumes:
 - Water Abstraction data was provided via email in feedback on the WUL.
 - Consumption Report, 2019.
- Dust Fall Out information.
- All other information referenced in the performance/ compliance assessment checklists.

2.2.2 Checklist Formulation

EnviroGistics (Pty) Ltd conducts its performance assessment on an electronic spreadsheet 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 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. The checklist prepared for the purposes of this performance assessment is based on the permits presented in Section 1.3.

This report, however, is specifically compiled to present feedback on compliance in terms of the approved 2013 WUL on site.

2.2.3 Site Assessment and Schedule

A site visit was undertaken on 6-8 August 2019 during which time photographs were taken and interviews were held with key personnel [Safety, Health, Environment and Quality (SHEQ), Mineral Resources Manager and Paste Disposal Facility operator]. During the site visit, the following areas were visited:

- Parson Area:
 - Storm Water Dams;
 - Load-Out Facilities;
 - Discard Dump.
 - Process Water Dams;
 - Salvage Yard;
 - Storm water management channels;
 - Hazardous Storage Facility; and
 - Domestic Landfill Site.
- Bruce Area:
 - Diesel Storage Area;
 - Workshop Areas;
 - Plant Area;
 - Storm Water Dam;
 - Opencast Pits;
 - Barrier Pillar Area;
 - WRD Areas; and
 - General Mining Area.
- King/Mokaning Area:
 - Workshop Areas;
 - TFR Line;
 - Opencast Pits;
 - Paste Disposal Facility;
 - Topsoil Stockpile Areas;
 - WRD Areas;
 - Plant Area; and
 - General Mining Area.

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 2: 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.
TBA	To Be Amended	Only conditions to be amended in terms of NEMA (2014 as amended), Regulation 34.
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

The site visit was initiated with an opening meeting during which time the client provided EnviroGistics Pty (Ltd) with a discussion on the current environmental status of the mining operation, as well as key environmental and operational issues experienced on the Mine.

The draft Audit Report was provided to the client on 12 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), as well as 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 Environmental Assessment Practitioner (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.

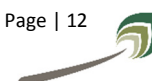
Table 3: EAP Contact Details

Name	Tanja Bekker
Designation	Environmental Assessment Practitioner
Postal Address	PO Box 22014, Helderkruin, 1733
Physical Address	21 Gladiolus Street, Roodekrans, 1724
Telephone Number	+27 (0) 82 412 1799
Cell Phone Number	+27 (0) 82 412 1799
Fax Number:	+ 27 (0) 86 551 5233
Email Address	tanja@envirogistics.co.za

The following table presents the expertise of the EAP to carry out the Compliance Assessment.

Table 4: 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 Hon. – University of Johannesburg	Member of the International Association for Impact Assessment (IAIA)	9 Years



3 LEGAL 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 Environmental Management Act

The *National Environmental Management Act, 1998* (Act No. 107 of 1998) (NEMA) is environmental framework legislation and has been enacted to, *inter alia*, establish a culture of compliance and enforcement in terms of which environmental laws must be heeded by the private sector.

3.2.1 Sustainability Principles and Duty of Care

NEMA provides for a comprehensive array of sustainability principles which cumulatively aim to create, among others, corporate socially responsible behaviour by establishing legal liability for environmental damage as well as damage to human health and well-being. Apart from these principles, NEMA also contains mechanisms, procedures and structures to facilitate pollution prevention, minimisation and remediation.

Chapter 7 of NEMA contains essential provisions dealing with liability for environmental damage in South Africa and two key elements form part thereof; namely pollution prevention and remediation. A duty of care is contained in Section 28, which encompasses the main liability provision which applies retrospectively and therefore also to historical pollution. Section 28(1) applies to all forms of pollution, including mining pollution, and is formulated generally by providing a duty of care to avoid, minimise and/or remedy pollution or



environmental degradation. In terms of this subsection, the duty imposes liability on an almost non-exhaustive category of persons, because it refers to "every person". Subsection (3) provides an indicative range of measures that can be considered as "reasonable measures" and these may include measures to investigate, assess and evaluate the impact on the environment; inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation, contain or prevent the movement of pollutants or the causing of degradation, eliminate any source of the pollution or degradation and remedy the effects of the pollution or degradation.

Where a mine fails to take reasonable measures to prevent or minimise pollution, it can be directed to do so by the relevant authority and if it does not comply with the directive, measures will be taken by government on its behalf, but at the Mine's expense.

3.2.2 Authorisation Requirements

NEMA serves as framework legislation in guiding the country's overall environmental protection effort. In respect of the listed activities in terms NEMA, Section 24F(1)(a) of NEMA stipulates the following:

"no person may- commence an activity listed or specified in terms of section 24(2)(a) or (b) unless the competent authority or the Minister of Minerals and Energy, as the case may be, has granted an environmental Authorisation for the activity..."

Section 24F is clear in its prohibition that only those "**listed or specified**" activities may not commence without prior environmental authorisation. Consequently, the activities conducted by the mine will only trigger an environmental authorisation when the said activities trigger a listed or specified activity referred to in Section 24F.

In addition to the aforementioned, kindly note the definition of "**commencement**" in Section 1 of NEMA which reads as follows:

"...the start of any physical implementation in furtherance of a listed activity or specified activity, including site preparation and any other action on the site..."

The law is clear in that the NEMA Regulations **do not have retrospective working** and accordingly, the activities on site must be assessed in accordance with "**when they commenced**".

Furthermore, Section 24(1) of NEMA requires that the potential consequences of or impacts on the environment of listed activities must be considered, investigated, assessed and reported on to the competent authority. Where environmental impact assessment has been identified as the instrument to be utilised in achieving the aforementioned, an application for environmental authorisation needs to be obtained.

Activities contained in Listing Notice 1 and 3 require a Basic Assessment process to be followed whilst activities in Listing Notice 2 require a Scoping and Environmental Impact Reporting (S&EIR) process to be followed.

3.2.3 Legalities regarding the Auditing Requirements

Of particular relevance to the annual legal compliance audit and performance assessments, Section 24Q of NEMA determines that, as part of the general terms and conditions for an environmental authorisation and in order to ensure compliance with the conditions of the environmental authorisation, every holder and every holder of an old order right must conduct such monitoring and such performance assessment of the approved environmental management programme as may be prescribed.

In addition to the above, Regulation 54A of the amended 2014 Environmental Impact Assessment (EIA) Regulations stipulates that where a right or permit issued in terms of the MPRDA or an authorisation issued in terms of the previous NEMA Regulations (and the associated EMPr or EMP) is still in effect after 8 December



2014, the requirements contained in Part 3 of Chapter 5 of the 2014 EIA Regulations (i.e. the auditing provisions) apply to such EMPr's/ EMPs **and the first environmental audit report must be submitted to the competent authority no later than 7 December 2019** and at least every 5 years thereafter for the period during which such right, permit, authorisation, EMPr or EMP is still in effect.

3.3 The Mineral and Petroleum Resources Development Act

Since 2004, the *Mineral and Petroleum Resources Development Act, 2002* (Act No. 28 of 2002) (MPRDA) has been the principle piece of legislation that regulates the South African mineral and petroleum sector.

The MPRDA was enacted with the objectives of promoting local and rural development, ensuring equal access to minerals, and eradicating discriminatory practices in the industry, while still guaranteeing security of tenure to participants in the industry and increasing the industries international competitiveness.

In December 2014, Government commenced the rollout of the “*One Environmental System*”, which initiated the streamlining of the licensing processes for, *inter alia*, mining and environmental authorisations.

The system, announced by the President in his State of the Nation Address in February 2014, represented Government’s commitment to improve the ease of doing business and further enhance South Africa’s global competitiveness as a mining investment jurisdiction.

Under the One Environmental System, the Minister of the DMR, *inter alia*, issues environmental authorisations (and Waste Management Licences (WMLs)) in terms of NEMA and NEMWA, for mining and related activities. The Minister of the DEA is the appeal authority for these authorisations. To enable the abovementioned One Environmental System, amendments to NEMA and the MPRDA were published with the objective to align NEMA and the MPRDA authorisation processes as well as to provide for cooperative governance between the DMR and the DEA.

The governing provisions in respect of EMPr’s were removed from the MPRDA and incorporated into Sections 24N, 24O, 24P, 24Q, 24R and 24S of NEMA. However, Regulation 55 remains applicable in that the MPRDA Regulations states that as part of the general terms of conditions for a mining right and in order to ensure compliance with and EMPr and to assess the continued appropriateness and adequacy of the EMPr a holder of such a right must, conduct performance assessments of the EMPr as required and submit such report to the Minister which demonstrate compliance. This assessment must be undertaken as specified in the approved EMPr, every two (2) year or as agreed to in writing by the Minister.

3.4 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.

3.4.1 Non-compliance with the MPRDA

Section 25 of the MPRDA states, *inter alia*, that the holder of a mining right must –

- ☞ actively conduct mining in accordance with the mining work programme;
- ☞ comply with the relevant provisions of this Act, any other relevant law and the terms and conditions of the mining right;
- ☞ comply with the requirements of the approved EMP; and
- ☞ comply with the requirements of the prescribed social and labour plan.

Section 98(a)(viii) of the MPRDA stipulates that any person is guilty of an offence if he or she contravenes or fails to comply with any other provision of the MPRDA. Furthermore, Section 99(1) (g) states that in the case of any



conviction of an offence in terms of this Act for which no penalty is expressly determined, to a fine or to imprisonment for a period not exceeding six months or to both a fine and such imprisonment.

3.4.2 Non-compliance with NEMA

3.4.2.1 General provisions

Section 24F of NEMA prohibits the commencement of an activity listed or specified in terms of Section 24(2)(a) or (b) unless the competent authority or the Minister responsible for mineral resources has granted an environmental authorisation for the activity.

Section 49A(1)(a) stipulates that it is an offence to commence with an activity in contravention of Section 24F (1). Furthermore, and in terms of Section 49B, a person convicted of an offence is liable to a fine not exceeding R10 million or imprisonment for a period not exceeding 10 years, or to both such a fine and imprisonment.

3.4.2.2 Section 28 – Duty of Care

Section 28 of NEMA stipulates that every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

The provision also applies to significant pollution or degradation that occurred prior to the commencement of NEMA and is likely to arise at a different time from the actual activity that caused the pollution or degradation.

The person obliged to take the reasonable measures as contemplated in Section 28(1) includes an owner of land or premises, a person in control of land or premises or a person who has a right to use the land or premises on which the activity is undertaken. A manager or the owner of the land can therefore be held liable for any environmental pollution or degradation caused.

The measures required to be undertaken, may include measures to:

- ☞ investigate, assess and evaluate the impact on the environment;
- ☞ inform and educate employees about the environmental risks of their work and the way their tasks must be performed in order to avoid causing significant pollution or degradation of the environment;
- ☞ cease, modify or control any act, activity or process causing the pollution or degradation;
- ☞ contain or prevent the movement of pollutants or the cause of degradation;
- ☞ eliminate any source of the pollution or degradation; or
- ☞ remedy the effects of the pollution or degradation.

Sections 49A (1) (e) and (f) stipulate that a person is guilty of an offence if that person unlawfully and intentionally or negligently commits any act or omission which causes significant pollution or degradation of the environment or is likely to cause significant pollution or degradation of the environment and/or unlawfully and intentionally or negligently commit any act or omission which detrimentally affects or is likely to detrimentally affect the environment.

Furthermore, and in terms of Section 49B, a person convicted of an offence is liable to a fine not exceeding R10 million or imprisonment for a period not exceeding 10 years, or to both such a fine and imprisonment.

3.4.2.3 Section 24Q - Monitoring and performance assessment

As part of the general terms and conditions for an environmental authorisation and in order to –

- ☞ ensure compliance with the conditions of the environmental authorisation; and



- ☞ to assess the continued appropriateness and adequacy of the EMP;

every holder and every holder of an old order right must conduct such monitoring and such performance assessment of the approved EMP as may be prescribed.

Section 49A(1)(c) stipulates that a person is guilty of an offence if that person fails to comply with or contravenes a condition of an environmental authorisation granted for a listed activity or specified activity or an approved EMP. Furthermore, Section 49B(1) states that a person convicted of an offence in terms of Section 49A(1)(c) is liable to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years, or to both such fine and such imprisonment.

3.4.2.4 Section 24G - Consequences of Unlawful Commencement of Activity

A Section 24G application relates to a “*rectification process*” by which an applicant –

- ☞ has commenced with a listed or specified activity without an environmental authorisation in contravention of Section 24F(1) of NEMA; or
- ☞ has commenced, undertaken or conducted a waste management activity without a WML.

It is pertinent to note that the Minister or MEC concerned may direct the applicant to –

- ☞ immediately cease the activity pending a decision on the application submitted in terms of this subsection;
- ☞ investigate, evaluate and assess the impact of the activity on the environment;
- ☞ remedy any adverse effects of the activity on the environment;
- ☞ cease, modify or control any act, activity, process or omission causing pollution or environmental degradation;
- ☞ contain or prevent the movement of pollution or degradation of the environment; and
- ☞ eliminate any source of pollution or degradation.

Furthermore, and as part of the Section 24G application process, the applicant **must pay an administrative fine**, which **may not exceed R5 million** and which must be determined by the Competent Authority.

The submission of an application or the granting of an environmental authorisation shall in no way derogate from –

- ☞ the environmental management inspector’s or the South African Police Services’ authority to investigate any transgression in terms of this Act or any specific environmental management Act; and
- ☞ the National Prosecuting Authority’s legal authority to institute any criminal prosecution.

3.4.2.5 Section 24G Fine Regulations

Regulation 2 determines that the purpose of the *National Environmental Management Act 107 of 1998: Section 24G Fine Regulations* (GN R698 in GG 40994 of 20 July 2017) (Fine Regulations) is to provide for the procedure to be followed and criteria to be considered to determine a fine in respect of a Section 24G of NEMA application for the rectification of illegal commencement.

The Fine Committee will take the following factors into account when determining the proposed quantum of the fine (Regulation 4):

- ☞ the information submitted by an applicant in terms of Section 24G(1)(b)(vii)-(viii);
- ☞ the completed application form, including Section C of Annexure A, Part 1 of which is to be completed by the applicant's environmental assessment practitioner;
- ☞ the impacts or potential impacts, including the cumulative impacts, of the activity or activities namely:
 - the socio-economic impact;
 - the biodiversity impact;



- the impact on sense of place and/or heritage; and
- any pollution and/or environmental degradation which has been, is being or may be caused by the activity or activities.
- any technical or specialist advice or information on local knowledge received;
- the compliance history of the applicant;
- whether the applicant is a firm or a natural person; in this regard the fine committee and the competent authority must consider whether-
 - any of the directors of the applicant firm are, or were, at the relevant time, directors of a firm.
- any other representations made by the applicant in terms of Annexure A Section C in respect of the quantum of the fine.

Regulation 5 provides a mechanism to the applicant to make representations in respect of the quantum of the fine.

Regulation 6(3) stipulates that the applicant must, within 14 days of receipt of the determination of the quantum of the fine, ensure that all interested and affected parties (as registered in terms of Regulation 8), are notified of, and provided with access to, the determination and the reasons for the determination.

Additionally, sub-regulation (4) determines that failure to pay the fine within the time period specified in the determination, the application shall lapse, and partial amounts paid to the competent authority, if any, will not be refunded to the applicant.

The recommendation, from the Fine Committee, for repeat contraveners must be to be penalised with the maximum fine. For the purposes of this regulation, the competent authority may consider the applicant's conduct since 7 January 2005 (Regulation 9).

Regulation 11 allows for consolidated applications and stipulates that where a consolidated application is submitted for more than one listed or specified activity or waste management activity, the Competent Authority may impose a single fine in respect of the consolidated application provided the activities are interrelated.

3.4.2.6 Criminal Liability

Section 34 of NEMA governs criminal liability and stipulates that whenever any person is convicted of an offence under any provision listed in Schedule 3 and it appears that such person has by that offence caused loss or damage to any organ of state or other person, including the cost incurred or likely to be incurred by an organ of state in rehabilitating the environment or preventing damage to the environment, the court may in the same proceedings at the written request of the Minister or other organ of state or other person concerned, and in the presence of the convicted person, inquire summarily and without pleadings into the amount of the loss or damage so caused.

All offences as listed in Section 49A of NEMA are considered Schedule 3 offences.

Section 34(2) states that upon proof of such amount, the court may give judgment therefor in favour of the organ of state or other person concerned against the convicted person, and such judgment shall be of the same force and effect and be executable in the same manner as if it had been given in a civil action duly instituted before a competent court.

Section 34(3) stipulates that whenever a person is convicted of an offence under any provision listed in Schedule 3 the court convicting such person may summarily enquire into and assess the monetary value of any advantage gained or likely to be gained by such person in consequence of that offence, and, in addition to any other punishment imposed in respect of that offence, the court may order –

- the award of damages or compensation or a fine equal to the amount so assessed; or
- that such remedial measures as the court may determine must be undertaken by the convicted person.



Section 34(4) states that whenever any person is convicted of an offence under any provision listed in Schedule 3 the court convicting such person may, upon application by the public prosecutor or another organ of state, order such person to pay the reasonable costs incurred by the public prosecutor and the organ of state concerned in the investigation and prosecution of the offence.

The following parties can be held criminally liable in terms of Section 34 of NEMA:

- The firm (“a body incorporated by or in terms of any law as well as a partnership”).
- Employer, as a result of the actions of any manager, agent or employee.
- Any manager, agent or employee in his/her personal capacity.
- Previous or current directors of a firm in his/her personal capacity.

3.4.2.7 Cancellation of Permits

Section 34C of NEMA stipulates that the court convicting a person of an offence in terms of this Act or a specific environmental management Act may –

- withdraw any permit or other authorisation issued in terms of this Act or a specific environmental management Act to that person, if the rights conferred by the permit or authorisation were abused by that person;
- disqualify that person from obtaining a permit or other authorisation for a period not exceeding five years;
- issue an order that all competent authorities authorised to issue permits or other authorisations be notified of any disqualification in terms of paragraph (b).

4 COMPLIANCE ASSESSMENT

4.1 General Observations

4.1.1 Status of EMPs

The approved EMPs on site are still valid, however through Khumani’s ongoing commitment to optimise its existing mineral resources, the design and operational team has identified the need for two (2) additional process facilities to optimise beneficiation with the aim of producing the required grade for its Markets and strive to meet its approved production allocation. These facilities include the Off-Grade 2 Plant (approved in terms of the NEMA during October 2013, but has subsequently lapsed).

4.1.2 Off-Grade 2 Plant Project (2013)

The construction of the Off-Grade 2 Plant has been placed on hold due to the current decline in the Iron Ore Market. When the market stabilises the feasibility of the Off-Grade 2 Plant will be reinvestigated. The Off-Grade 2 Environmental Authorisation was valid for a period of three (3) years from allocation (i.e. up until the last quarter of 2016) and the opportunity to renew this application has subsequently lapsed. The implication thereof is that the Mine will have to resubmit an application for Environmental Authorisation for this project.

4.1.3 Optimisation Project (2016)

Through Khumani’s ongoing commitment to optimise its existing Minerals resources, the operational team has identified the need for additional process facilities required to optimise beneficiation and still meet its approved



production allocation. The approved Khumani Mining Right Application, submitted by the Mine, stipulated the Mine's intention to reuse low-grade material by reclaiming same in the future. The proposed project ensures that the Mine fulfils this commitment. It is therefore the intention of Assmang to upgrade infrastructure on the Farms Parson, Bruce and King within their existing mining areas.

The proposed upgrades on the farm Parson include:

- The extension of the existing approved Low-Grade Stockpile (previously known as the Parson Discard Dump);
- Tertiary By-pass Stockpile area at the existing Low-Grade Stockpile serving the Off-Grade 2 Plant;
- A new Low-Grade Reclaiming Facility adjacent to existing Low-Grade Stockpile;
- The new WHIMS 2 Plant; and
- Three (3) additional conveyors.

The proposed upgrades on the farm King include:

- Extension of the existing King/ Mokaning Overburden and Low-Grade Stockpile; and
- A new Low-Grade Stockpile for reclaiming purposes within the King Plant area (WRD J).

The proposed upgrades on the farm Bruce include:

- Expansion of the approved Bruce Low-Grade Run of Mine (ROM) Stockpile.

Other activities required will include:

- Water storage tank at the WHIMS 2 Plant;
- Process water and Storm Water Dams at the WHIMS 2 Plant, with a combined capacity of less than 50,000m³;
- Upgrading and expansion of storm water facilities (separating clean and dirty water);
- High Pressure Grinding Roll (HPGR) Crushing Facility;
- Haul roads; and
- 22kV power lines to accommodate the WHIMS 2 Plant and the reclamation activities.

These additional activities on both the farms King and Parson require approval under the NEMA, the NWA and at the time of submission, an Amendment to the EMP in terms of the MPRDA. The activities will not influence the production output or Mining Work Programme of the Mine.

The transitional arrangements of *Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits, 2015* (GN R632 in GG 39020 of 24 July 2015) (Residue Stockpile Regulations) are very important. Under the transitional arrangements it is stated that an EMP approved in terms of the MPRDA shall be deemed to have been approved and issued in terms of the NEMWA. The Minister may however direct any holder of a mining right if he or she is of the opinion that the residue stockpile or residue deposit in question is likely to result in significant pollution, degradation or damage to the environment, to take such action to upgrade the EMP to address any deficiency in the EMP. A further very important component of the transitional arrangements is the fact that under Section 6 it is stated that an EMP submitted in terms of the MPRDA and which is pending when this Notice take effect (8 December 2014), must despite the repeal of the MPRDA be dispensed with in terms of the MPRDA.

The Environmental Authorisation has been awarded by the NCDENC during July 2016.

4.1.4 Water Optimisation Project (current)

A new Water Optimisation Project has been commissioned at the Mine. The projects included herein are:

Project 1: New Return Water Dam 3



Khumani intends to construct a new Return Water Dam ("Return Water Dam 3") at a capacity of approximately 49 000m³ – (details and designs of the facility are not as yet finalised; however, the wall height will be below 5m) associated with the existing Paste Disposal Facility. The new Return Water Dam 3 will be located on Portion 0 of the farm King. The intention of the project is as follows:

- Supernatant and storm water will be pumped from the Paste Disposal Facility compartments to the existing concrete lined silt trap.
- The silt trap overflows into the existing HDPE lined Return Water Dam 1 from where the water is returned to the thickener overflow tank for re-use in the process.
- Excess storm water will overflow from the Return Water Dam 1 into the existing Return Water Dam 2.
- In turn, excess storm water will overflow from the existing Return Water Dam 2 into the new Return Water Dam 3.
- Water will then be pumped from the Return Water Dam 3 to the Return Water Dam 1 or 2 once the water level in the Return Water Dam 1 has dropped significantly.
- The intention is to operate the Return Water Dams dry and to maintain the level in the Return Water Dam 1 at less than 30%.

The new Return Water Dam 3 will have a spillway that will divert overflow to the Paste Disposal Facility Compartment 3B in case of an emergency. The design intent is not to utilise this spillway more than once in 50 years.

Project 2: New Infrastructure

In addition to this, the Mine will also establish a second pipeline from the King Plant to the Parson Beneficiation Plant to transport the paste water to and from the plants. The pipeline will be routed from the Paste Disposal Return Water Tank located on the farm King to the Beneficiation Plant Thickener located on the farm Parson. The volume to be pumped through the pipeline is planned to be approximately 375l/s.

Another pipeline of approximately 3km is planned from the Parson Return Water Dam (currently called the Parson Plant Storm Water Dam) which will return water back to the plant for reuse. The design of the pipeline is currently not final, however it is anticipated that the throughput will be about 100m³/hr, which will amount to about 1 700l/s when water is present in this facility.

A new Water Containment Facility, of which the designs are still in planning phase, is planned at the King Plant area to supply water to the mining operations. Currently water is being supplied via the Parson storage facilities, which in periods hampers capacities, when water scarcity arises in the area. With a new storage facility at the King operation, Khumani can store water for this mining operation specific and allow for buffer capacities in dry events. The capacity of the facility and the design of the facility are as yet not available, but will be less than 50 000m³. Should clearance be required this will also be less than 1ha of indigenous vegetation.

Project 3: Water Use Licence (WUL) amendment

Khumani intends to amend the existing 2013 WUL to correct various administrative errors, as well as to include water uses associated with the 2016 Environmental Authorisation (Permit 21/2016) (see Appendix 5). In addition to this, a water optimisation study is being undertaken by Geo Tail Projects (Pty) Ltd (Geo Tail). Based on the outcomes of the current Water Studies (Water Balance and Storm Water Management Study), various other amendments may be required to approved water uses in terms of throughput volume/naming and/or capacity. One amendment currently considered is the duplication of the Braithwaite Water Tank at King to allow for additional buffer capacity. The amendments to facilities are located on all four (4) farms owned by Khumani.

The NEMA Application was submitted to the DMR on 2 October 2018. This application was acknowledged via an email dated 1 November 2018 by the DMR, with the application acknowledged on 16 October 2018. At the time of the email confirmation, the DMR system stated the application as at 16 days. It is understood that the competent authority must acknowledge receipt of all applications and documents contemplated in Regulations



16, 19, 21, 23, 29, 31 and 34 within 10 days of receipt thereof and for this reason the Environmental Authorisation Process has continued to comply with the regulatory timeframes.

In terms of stakeholder consultation, the following were undertaken:

- ☞ A project notification was sent to all stakeholders on the current Khumani Stakeholder Database;
- ☞ In accordance with GNR 982 Section 41(2)(a-b), a site notice was developed in both Afrikaans and English) and placed at four locations in order to inform surrounding communities and adjacent landowners of the proposed project. The site notices were placed on 22 August 2018) and at visible locations close to the site; and
- ☞ In accordance with GNR 982 41(2)(c) of Chapter 6 an advert was placed in both the Diamond Fields Advertiser and the Kathu Gazette. The advert was place in both Afrikaans and English in the above newspapers on 29 August 2018 and 1 September 2018 respectively.

4.2 Environmental Audit Outcomes

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

1. Environmental Authorisation 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.



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Table 5: MPRDA Licence Assessment (February 2006)

Number/Description	Requirement	Observation	Source Document / Observation	Rate	Target Rate	Recommendation	Responsible person
NC 30/5/1/2/3/2/1/070EM (January 2007)							
EMP Requirements							
Disruption of geological strata due to the removal of material during the opencast pit establishment	Mining operations will remain within the limits of the proposed opencast operations.	Compliant, from the site visit it was observed that the Mine is still within the approved opencast limits.	Site observations.	3	3	The SHEQ Department must attend meetings by the Mining Department to ensure that any deviations from the approved Mining Work Programme or layout can be addressed proactively.	SHEQ Department
	The mine will ensure that 172 million tons of waste rock will be replaced into the mined-out voids over the life of the operations.	<p>The Mine is still in the ramp-up period with opencast being established. Various opencast pits have been backfilled, which mainly include the smaller satellite pits (BC04). Other backfilling activities include:</p> <ul style="list-style-type: none"> * The backfilling of Opencast Pit BC01 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan. The backfilling plan allows for a planned 15% backfill per annum over a period of 6-7 years; * Opencast Pit BC02 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC02 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; * Opencast Pit BC03 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC03 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; and * The enviro berm associated with Opencast Pit BA still requires completion of the remaining 40%. <p>Volumes are being kept on site. Actual backfilling volumes for Opencast Pit B04 are available as Lenfield Earthworks (Lenfield) was responsible for the backfilling and was paid per quantity. In terms of Opencast Pits BC01, BC02 and BC03, volumes are recorded on MineStar (mine load and haul programme). The Environmental (SHEQ) Department is in the process of consolidating all this information to develop a track record for the volumes disposed.</p>	Site observations. Annual Rehabilitation Plan, May 2019	3	3	Ongoing rehabilitation should be prioritised as far as possible. Records of backfill volumes should be kept on an internal recording system.	SHEQ & Mining Department
	The opencast pit backfill volume estimates as per the proposed 2005 mine schedule will be followed.	Backfilling will still be undertaken as per original volumes; however, the backfilling schedule has changed substantially as the Mine wishes to keep pits open for longer to ensure the optimal utilisation of these infrastructure and resources.	Site observations.	TBA	TBA	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. This could be undertaken as part of an overall EMP Amendment which is scheduled to take place early 2020. The condition should be amended to allow for the backfilling	SHEQ Department



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						process to be undertaken in a dynamic mining operation and in line with the commitments made in the Financial Provision's Annual Rehabilitation Plan.	
	The backfilling will be undertaken parallel to the mining operation in order to eliminate double handling of overburden.	<p>The Mine is still in the ramp-up period with opencast being established. Various opencast pits have been backfilled, which mainly include the smaller satellite pits (BC04). Other backfilling activities include:</p> <ul style="list-style-type: none"> * The backfilling of Opencast Pit BC01 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan. The backfilling plan allows for a planned 15% backfill per annum over a period of 6-7 years; * Opencast Pit BC02 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC02 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; * Opencast Pit BC03 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC03 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; and * The enviro berm associated with Opencast Pit BA still requires completion of the remaining 40%. <p>Volumes are being kept on site. Actual backfilling volumes for Opencast Pit B04 are available as Lenfield was responsible for the backfilling and was paid per quantity. In terms of Opencast Pits BC01, BC02 and BC03, volumes are recorded on MineStar (mine load and haul programme). The Environmental (SHEQ) Department is in the process of consolidating all this information to develop a track record for the volumes disposed.</p>	Site observations.	3	3	Ongoing rehabilitation should be prioritised as far as possible. Records of backfill volumes should be kept on an internal recording system.	SHEQ & Mining Department
	The remainder of the overburden and low-grade ROM (not economically viable at present economic conditions) will be stockpiled near the opencast operations.	Compliant, the Low-Grade ROM stockpiles are stockpiled as per the approved operations.	Site observations.	3	3	No recommendations.	SHEQ & Mining Department
	Ensure that infrastructure is built on stable foundations based on the geotechnical investigations.	<p>All infrastructure has been constructed as per the approved site layout plans, which were subjected to geotechnical investigations.</p> <p>In order to monitor and track these occurrences, a satellite system has been implemented which monitors the movement of land every minute. Stability beacons (prisms) have also been acquired for implementation around the</p>	<p>Annual Paste Disposal Facility Structural Stability Audit Report – September 2018.</p> <p>Mine Layout Plans</p>	3	3	No further recommendations.	-



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		<p>Paste Disposal Facility to monitor the horizontal and vertical movement of land.</p> <p>Weekly, monthly and quarterly monitoring is being undertaken on the Paste Disposal Facility by the engineering contractors (Stefanutti Stocks Mining Services (Pty) Ltd (SSMS)) and the 3rd party PR Engineer (Guillaume de Swart – Geo Tail Project (Pty) Ltd (Geo Tail)).</p> <p>According to the Structural Stability Audit Report, it is stated that the factors of safety are satisfactory for normal operating conditions, but that it is assumed that the management of the facility will be adequate and the need to monitor the identified critical parameters is essential. The report further stated that there are no high structural stability risks identified for the Khumani Paste Disposal Facility.</p>					
Sinkhole Development	Containment dams, paddocks, etc. will be monitored and maintained to ensure that no water leakage take place.	<p>Seepage collection is undertaken at the Paste Disposal Facility but not at the Storm Water Dams. These dams have however been constructed in terms of approved designs.</p> <p>The intention of the Storm Water Dams is to be operated as empty - i.e. water circulation is to be implemented. Pumps are in place at the Bruce and Parson Storm Water Dams, but the reuse and circulation are not optimised and water volumes beyond the concrete sumps are present, and therefore such water is not contained and will seep into subsurface. Designs have been finalised for the improvement water circulation and infrastructure in these areas to optimise water return.</p> <p>At the Load-Out Storm Water Dam, a pump is present but is not connected to the internal infrastructure to allow for the recirculation of water. A dust suppression tap-off point has been constructed to the southwest of the facility but is not linked thereto. The dam is also not constructed in such a way to channel water to the contained area in a formalised manner, and the presence of long-term ponding is observed below the discharge point of the concrete channels, south of the concrete sump. It should further be noted that the approved layout of the Storm Water Dam is different from that approved in the WUL - although the dam has been constructed in an old borrow pit, only a portion of this pit was approved for water storage in terms of submitted designs. The change in the design resulted in the construction of the Third-Party Load-Out Facility which</p>	Site observations. Water Quality Results, July 2019	1	3	<p>The water studies and designs must be included into the 2019 WULA and submitted to the DWS.</p> <p>The design of the King Crusher Dam should be investigated by an engineer.</p> <p>The upstream catchment's routing of water should be investigated to ensure that the water enters the required dam system.</p> <p>Where water flows down the conveyor path, it is recommended that a pump be implemented within the first depression (this area should be formalised for such purpose) to pump water back to the Storm Water Dam.</p> <p>The road upgradient of the King Crusher Dam should be equipped with fit for purpose erosion measures to manage the formation of erosion gulleys along this linear infrastructure, which is also a stability concern.</p> <p>The source of water into the borrow pits north of the railway line should be identified.</p>	SHEQ & Engineering Department



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		<p>encroached into the borrow pit area. The design has been re-assessed by Mr. Bruce Randell and will be included into the new WULA.</p> <p>A repeat finding is observed north of the railway siding where water is accumulating into the borrow pits. The source of this water is not understood fully, but it may be a likely result of subsurface drainage from the upgradient Storm Water Dams at Parson. Water in the borrow pits has been analysed on 3 July 2018, and no exceedances in terms of 2008 WUL, except for Fluoride (F), Nitrate (NO₃) and pH, were recorded. The previous audit report required that further investigation must be undertaken to determine the external source to this pit.</p> <p>At the King Crusher Dam various concerns were observed relating to the design of the facility. The observations are a repeat of the 2017 and 2018 audit, and relates to the channelling of water into the dam. No defined channel has been designed to channel water into the settling sump of the King Crusher Dam, resulting in various erosion gulleys forming, which leads to uncontrolled water entering into the dam and storm water not entering the dam as required. Water from the crusher stockpile makes its way down the conveyor route and ponds at the first depression beneath the culvert.</p> <p>At the King New Stockpile Pollution Control Dam (PCD), a repeat finding was noted with the channels leading to this facility not being lined and the culvert into the dam being blocked with vegetation growth. Projects are currently underway to upgrade the Parson PCDs, as well as improving the lining of the channels in and around the Plant.</p>					
	Visual inspections will be undertaken on a weekly basis to monitor the condition of the area and report where any subsidence is found.	<p>In order to monitor and track occurrences of subsidence within the mining area, a satellite system has been implemented which monitors the movement of land every minute. Stability beacons (prisms) have also been acquired for implementation around the Paste Disposal Facility to monitor the horizontal and vertical movement of land.</p> <p>Weekly checklists are also in place to inspect various aspects associated with the Paste Disposal Facility.</p>	<p>Site observations.</p> <p>Weekly inspection checklist Ref: FM-P-Metallurgical Processing (Rev 3, 20 May 2014).</p>	3	3	The Mine should continue with stability assessments on the Paste Disposal Facility and should implement the stability beacons (prisms) as soon as possible.	Stefanutti Stocks Mining Services (Pty) Ltd (SSMS)
Altering of the topography	Where possible haul roads and conveyors will be constructed within a mutual servitude to limit the area of impact.	Compliant.	Site observations.	3	3	No recommendations.	-



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	Power lines will as far as possible be constructed within a mutual servitude of the haul roads and conveyors.	Compliant.	Site observations.	3	3	No recommendations.	-
	All single pole power lines will be constructed in order to reduce the impact on the surrounding area (i.e. visual and topographic).	Compliant.	Site observations.	3	3	No recommendations.	-
	Topsoil will be stockpiled on designated areas upslope of the proposed mining operations to ensure that contamination by dirty mine water is prevented.	Compliant in terms of location, however, demarcation is not up to standard, with proper signage lacking.	Compliant.	3	3	Signage should be implemented at each of the topsoil stockpiles to demarcate the site and its purpose.	SHEQ Department
	The height of the topsoil stockpiles will range between 1.5 and 5 m.	The heights of the topsoil stockpiles at Bruce, King Topsoil Stockpile North and the King Topsoil Stockpile South were observed to exceed the 5m requirement. An additional topsoil stockpile is present, due to the construction of the new King WRD J; this stockpile is still within the required heights.	Site observations.	0	3	<p>A detailed survey should be undertaken to determine the exact height of the stockpiles.</p> <p>It is recommended that a soil specialist assesses the integrity of the topsoil stockpiles and whether the current stockpiling techniques are adequate. This is specifically based on the height of the stockpiles and the volumes of traffic over these facilities.</p> <p>In addition to this, the Mine should undertake a topsoil balance on site to determine whether sufficient topsoil is available for the required rehabilitation practices in the future.</p> <p>The EMP should be updated to make provision for new topsoil management practices to ensure that the practices on site can be undertaken in a manner to protect the integrity of the soil resources. Where this is not possible, the Mine will have to investigate the need for soil fertilisation in consultation with the soil specialist.</p>	SHEQ Department
	Erosion control measures (i.e. terraces, vegetation etc.) will be implemented on all topsoil stockpiles exceeding 1.5m in height.	No erosion control measures have been put in place at the topsoil stockpiles, which are characterised by steep slopes. However, the only stockpile currently of concern, which requires controls is the King Topsoil Stockpile South.	Site observations.	0	3	Erosion control measures should be implemented on the topsoil stockpiles.	SHEQ Department
	Overburden and low-grade ROM stockpiles will be designed to ensure that they are free draining with a slope	The Overburden and Low-Grade Stockpiles are currently characterised by very steep slopes and should be designed to a 1:3 slope. Ensuring that these are designed to be free	Site observations.	0	3	A Code of Practice should be developed for the Mine Residue Deposits on site to ensure that deposition going forward	SHEQ & Mining Department



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	to blend into the surrounding environment as near as practically possible.	draining with a slope to blend into the surrounding environment will not be possible without extending the footprint areas. Berms are required around the WRDs, with the only ones present to the south of the Discard Dump and to the west of the Bruce Low-Grade ROM Stockpile. Designs have been finalised by the Mine which will accommodate the new WULA and will present the final designs of the stockpiles.				take into consideration final design slopes.	
	Self-succesion of the slopes of all stockpiles will be vegetated to ensure that the slopes are stable and in order to reduce any potential of erosion.	The areas where activities have been completed is successful in terms of self-succesion; this is specific to the opencast pit rehabilitation, the side slopes of the railway lines and the current topsoil stockpiles.	Site observations.	3	3	No recommendations.	-
	Design criteria for the dump and stockpile will be implemented and adhered to.	The stockpiles are being constructed in terms of the approved designs and footprints as per the EMP, with the exception of KM02 WRD at King, which has encroached beyond the footprint to the eastern portion of the site - although in areas indicated by past maps as disturbed. The Overburden and Low-Grade Stockpiles are currently characterised by very steep slopes and should be designed to a 1:3 slope. Ensuring that these are designed to be free draining with a slope to blend into the surrounding environment will not be possible without extending the footprint area. Berms are required around the WRDs, with the only ones present to the south of the Discard Dump and to the west of the Bruce Low-Grade ROM Stockpile. Designs have been finalised by the Mine which will accommodate the new WULA and will present the final designs of the stockpiles.	Site observations.	0	3	A Code of Practice should be developed for the Mine Residue Deposits on site to ensure that deposition going forward take into consideration final design slopes. The overall mine layout should be investigated and should be addressed in the future Environmental Authorisation process scheduled for early 2020.	SHEQ & Mining Department
	The paste disposal facility will be constructed in an area surrounded by various elevations, which will reduce the impact on the visual topography. The paste disposal facility will be constructed to blend in with the surrounding topography.	Compliant, the facility is constructed within the approved footprint and the slopes visible from the N14 are well vegetated.	Site observations.	3	3	No recommendations.	-
	The area surrounding the plant and associated infrastructure will be designed to be free draining.	In general, a well-developed storm water management system is in place. Studies are currently underway to improve water systems in and around the Plant area. During the site visit various channels in the Plant, King Mine and Parson Load-Out were silted. Some of these included: * King Refuelling Bay: Western channel silted at the second bunded area from the southern side. Eastern channel silted, specifically at the fourth sump from the southern	Site observations.	1	3	The storm water maintenance should receive attention. More regular inspections and clean up practices are required.	SHEQ Department



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		<p>side.</p> <ul style="list-style-type: none"> * Channel to the sump is silted to the New Stockpile Dam. * Channels into the King Crusher PCD are blocked (silted and vegetated). * Channel crossing the road to the PCD near the main offices has silt build up and vegetation growth. In this area there is an erosion gully on the road due to water runoff. * Earth channel behind the sample tower require maintenance (silt and vegetation). 					
	The opencast pits will therefore be fenced off or planted with thorny indigenous vegetation and warning signs will be established in order to ensure safety. Due to economic reasons backfilling cannot take place.	The Licence Holder is aware of this condition. Enviro berms will be implemented once the opencast pits have been mined and backfilling is completed.	N/A	T/N	T/N	No recommendations.	-
	The stockpiles will be shaped to blend in with the surrounding environment as far as possible. The stockpiles will be shaped to be self-sustaining (1:3 or 18°).	<p>The stockpiles are being constructed in terms of the approved designs and footprint areas as per the EMP, with the exception of KM02 WRD at King, which has encroached beyond the footprint to the eastern portion of the site - although in areas indicated by past maps as disturbed.</p> <p>The Overburden and Low-Grade Stockpiles are currently characterised by very steep slopes and should be designed to a 1:3 slope. Ensuring that these are designed to be free draining with a slope to blend into the surrounding environment will not be possible without extending the footprint area. Berms are required around the WRD, with the only ones present to the south of the Discard Dump and to the west of the Bruce Low-Grade ROM Stockpile. Designs have been finalised by the Mine which will accommodate the new WULA and will present the final designs of the stockpiles. The financial provision annual rehabilitation plan has been compiled to ensure that the sloping of the facilities are costed.</p>	<p>Site observations.</p> <p>Financial Provision - Final Rehabilitation Plan, May 2019</p>	1	3	A Code of Practice should be developed for the Mine Residue Deposits on site to ensure that deposition going forward take into consideration final design slopes. The overall mine layout should be investigated and should be addressed in the future proposed Environmental Authorisation process scheduled for early 2020.	SHEQ & Mining Department
	As areas become available for rehabilitation, the specific areas will be ameliorated and vegetated.	The areas where activities have been completed is successful in terms of self-succession. A subsequent EMP (Barrier Pillar, 2008) has amended this condition to only require amelioration and vegetation should self-succession not be successful.	N/A	NLR	NLR	No recommendations.	-
	The BKM Mine area will undergo quarterly inspections to assess and identify areas of disturbance and areas/ infrastructure not in use that could be cleaned up and rehabilitated	Areas in the Mine are divided into Workshops, Wash bays, Plant and Mining. Checklists are available for each of these areas. Environmental Officers are appointed for the Bruce, King and Parson Load-Out Facilities. Monitoring schedules are in place for each of these sites, planned a year ahead.	Inspection checklists for Environmental (available at Durelle Carstens).	3	3	The river diversion at King must be incorporated in this inspection. Maintenance and inspections of the channels should take place at least once a month.	SHEQ Department



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		In terms of the checklists, the mining checklists make specific reference to "any rehabilitation currently in progress and conducted correctly/according to the EMPr". The inspections are done frequent, more than quarterly. In addition to this the survey department regularly survey all disturbed areas which are presented at the quarterly feedback meetings.				Planning meetings should be attended by the Environmental Department to ensure that proactive input can be given in terms of possible backfilling or rehabilitation schedules.	
	The area, which is subject to rehabilitation, will be profiled to grade into the surrounding landscape.	The Licence Holder is aware of this condition. The rehabilitation of Opencast Pits BC04, BC03, BC02 is a clear indication of the effectiveness of the rehabilitation practices taking place on site.	Site observations.	3	3	No recommendations.	-
	Storm water will be diverted around rehabilitated areas up until such time the rehabilitated areas proves to be self-sustaining.	The Licence Holder is aware of this condition. The practices currently implemented proves to be successful with well rehabilitated opencast pits on site. The areas rehabilitated at this time, is mainly opencast pits, which are located within the overall mining area and on elevated areas. Storm water is diverted naturally around areas such as BC04 opencast pit, with the landscaping undertaken.	The Licence Holder is aware of this condition.	3	3	No recommendations.	-
Management Loss of Soil Resource	Soils, which are stripped, could be used in the construction of berms or other storm water measures. If soils are not used in the construction, they must be stored as close as possible to the area where they will be utilized for rehabilitation	Compliant.	Site observations.	3	3	No recommendations.	-
	The areas set aside for soil stockpiles will be delineated based on the expected soil volumes that are to be stored.	A more proactive approach is required in terms of monitoring and record keeping of topsoil. No topsoil balance has been developed for the site. Topsoil stockpiles are not demarcated on site, but a mine layout plan indicating these are available. The volumes for the specific areas have not been determined, which will be an important component to assess whether sufficient material is available for rehabilitation.	KH Engineering Bruce TMM Mobile Equipment, Bruce Load and Haul - 29 August 2017 Site observations. Mine Layout Plan	0	3	The Mine should undertake a topsoil balance on site to determine whether sufficient topsoil is available for the required rehabilitation practices in the future. The EMP should be updated to make provision for new topsoil management practices to ensure that the practices on site can be undertaken in a manner to protect the integrity of the soil resources. Where this is not possible, the Mine will have to investigate the need for soil fertilisation in consultation with the soil specialist. Topsoil stockpiles should be clearly delineated on site.	SHEQ Department
	Soil stockpiles will be clearly identified and stored separately other	Topsoil stockpiles are indicated on the Mine layouts, however these are not clearly demarcated or identified on site. During the site visit no signage was observed in these	Site observations. Mine Layout Plan	1	3	Signage should be implemented at each of the topsoil stockpiles to demarcate the site and its purpose.	SHEQ Department



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	soils/materials (no waste on the stockpiles)	areas. It should however be noted that no mixing of waste was observed on these facilities, with well-established vegetation present.					
	The full thickness of topsoil and subsoil will be stripped to a depth of 0.25 m and put aside, together with any vegetation cover present (only large bushes and trees to be removed prior to stripping).	Compliant. Lenfield, the contractors responsible for rehabilitation site, is responsible for the removal of topsoil.	Compliant.	3	3	No recommendations.	-
	Rapid growth of vegetation on the stockpiles will be promoted, by means of watering and fertilisation. This will help to combat both water and wind erosion.	In a subsequent EMP (Barrier Pillar EMP, 2009) this condition was changed, as the area proved to allow for self-succession.	N/A	NLR	NLR	No recommendations.	-
	Samples of the stripped soils will be analysed immediately prior to replacement to determine the nutrient status of the soils. Based on the analysis, fertilisers will be applied if necessary.	Rehabilitation has been limited to the opencast pits and these have been proven to be successful. In a subsequent EMP (Barrier Pillar EMP, 2009) the requirements are firstly to determine whether self-succession is successful. Should this not be achieved, it is recommended that samples to identify fertiliser requirements be undertaken.	Site observations.	T/N	T/N	No recommendations.	-
	Access roads and conveyors: Strip topsoil to a depth of 0.25 m, but not limited to, or to hard material is reached, over width of road pavement or conveyor. Long term stockpile soils on either side of roadway / conveyor.	Compliant.	Site observations.	3	3	No recommendations.	-
	Paste Disposal Facility: Strip topsoil to a depth of refusal on hard material or to a depth of 0.25 m, but not limited to, over the area of the paste disposal facility to be constructed. Stockpile the soils adjacent to the platform area for future rehabilitation.	No further soil stripping is required at the Paste Disposal Facility.	Site observations.	NLR	NLR	No recommendations.	-
Erosion	Where vegetation cannot be established during the life of construction and operations, appropriate measures will be taken to control erosion. These will include grading of surfaces to prevent rapid run-off of storm water and / or the use of energy dissipaters	The Licence Holder is aware of this condition. To date self-succession has been successful. Areas of erosion was not visible on rehabilitated sites.	Site observations.	T/N	T/N	No recommendations.	-
	Vegetation establishment in disturbed areas will be undertaken as soon as is practical, with growing season and water availability being the primary constraints. The stockpiles will be	In a subsequent EMP (Barrier Pillar EMP, 2009) this condition was changed, as the area proved to allow for self-succession.	N/A	NLR	NLR	No recommendations.	-



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	seeded with the recommended seed mix (refer to the vegetation study) at the onset of the wet season to reduce erosion by wind or water.						
	Where disturbed areas cannot be re-vegetated during the life of operations, appropriate measure will be taken to control erosion. These will include grading of surfaces to prevent rapid run-off of storm water and / or the use of energy dissipaters.	<p>Reno mattresses have been implemented around the TFR Diversion to retain stability of the runoff.</p> <p>At the ramp to the King Crusher, erosion gulleys were observed on the inner slope. From site interviews, it was stated that vegetation at the crusher areas are kept limited to prevent fire and snake hazards; this does however, constrain the stability of steep slopes, resulting in erosion.</p> <p>At the King Crusher Dam various concerns were observed relating to the design of the facility, specifically the channelling of water into the dam. No defined channel has been designed to channel water into the settling sump of the Crusher Dam, resulting in various erosion gulleys leading to uncontrolled water entering the dam and storm water not entering the dam as required.</p> <p>In general, the site was in good state, with little presence of erosion. There were however areas of concern in terms of erosion as a result of runoff, due to vegetation clearance or lack of vegetation establishment at the following areas: * Spills from the water filling point at King was observed during the site visit, and is creating an erosion gully, which will impact on water runoff in this area. * Erosion was noted at the north-eastern corner of the New Stockpile PCD and the stability of the wall is questionable. This is due to informal (unplanned) water runoff into this system. * Erosion gulleys were noted at the sediment trap exit at the Load-out PCD due to previous rain – this has not been fixed.</p>	Site observations.	0	3	Erosion control measures should be implemented at areas where erosion is prone due to the presence of storm water runoff.	SHEQ Department
	Erosion control measures are required on all slopes exceeding 2% and engineered erosion control measures are required on all slopes exceeding 15%. Slope angles of topsoil stockpiles will not exceed 1:3 (18°).	<p>Reno mattresses have been implemented around the TFR Diversion to retain stability of the runoff. However, no erosion control is present on the Crusher foundation walls or ramps or on the steep side slopes of the Discard Facility or Low-Grade ROM Stockpiles. The two latter facilities are however still in the operational phase.</p> <p>The stockpiles are being constructed in terms of the approved designs and footprints as per the EMP, with the exception of KM02 WRD at King, which has encroached beyond the footprint to the eastern portion of the site -</p>	Site observations.	1	3	The rehabilitation options for the stockpiles should be investigated. It is assumed, that based on the current engineering opinions in terms of the financial provision, that the footprints of the stockpiles will have to exceed the approved areas to ensure that the required slopes are met. This may trigger additional Waste Licensing considering the current NEMWA requirements.	SHEQ & Mining Department



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		<p>although in areas indicated by past maps as disturbed.</p> <p>The Overburden and Low-Grade Stockpiles are currently characterised by very steep slopes and should be designed to a 1:3 slope. Ensuring that these are designed to be free draining with a slope to blend into the surrounding environment will not be possible without extending the footprint area. Berms are required around the WRDs, with the only ones present to the south of the Discard Dump and to the west of the Bruce Low-Grade ROM Stockpile.</p> <p>Designs have been finalised by the Mine which will accommodate the new WULA and will present the final designs of the stockpiles.</p>				<p>The slopes where final footprints have been reached should be designed or reshaped to allow for the final design requirements.</p>	
	The construction of all topsoil stockpiles will be undertaken in a series of 1.5 m vertical lifts.	<p>No erosion control measures have been put in place at the stockpiles, which are characterised by steep slopes. However, the only stockpile currently of concern and which requires controls is the King Topsoil Stockpile South. No 1.5m lifts have been implemented.</p>	Site observations.	0	3	<p>It is recommended that a soil specialist assesses the integrity of the topsoil stockpiles and whether the current stockpiling techniques are enough. This is specifically based on the height of the stockpiles and the volumes of traffic over these facilities.</p> <p>The EMP should be updated to make provision for new topsoil management practices to ensure that the practices on site can be undertaken in a manner to protect the integrity of the soil resources. Where this is not possible, the Mine will have to investigate the need for soil fertilisation in consultation with the soil specialist.</p>	SHEQ Department
	Erosion controls are included in the designs of all linear infrastructure (access roads, conveyors or open channels) and points of water discharge. Such linear structures and discharge points will be inspected on a weekly basis to check that the measures are effective.	<p>Daily walkabouts are undertaken by the responsible persons around the active mining areas to ensure that all areas are fit.</p> <p>No areas of concern were observed around the linear infrastructure during the site visit on the majority of linear infrastructure such as roads and channels. Some areas of concern include: * Channel crossing the road to the PCD near the main offices has silt build up and vegetation growth. In this area there is an erosion gully on the road due to water runoff. * The earth channel behind the sample tower requires maintenance (silt and vegetation).</p>	Site observations.	2	3	<p>Areas where erosion is present should be rehabilitated.</p>	SHEQ & Engineering Department
	Soil replacement and the preparation of a seedbed to facilitate the	Rehabilitation has been limited to the opencast pits and these have been proven to be successful. In a subsequent	N/A	NLR	NLR	No recommendations.	-

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	vegetation program to limit potential erodibility will be implemented.	EMP (Barrier Pillar EMP, 2009) the requirements are firstly to see whether self-succession is successful. Should this not be achieved, it is recommended that samples be taken to identify fertiliser requirements.					
Soil Physical and Chemical Degradation	The mine will ensure that equipment movement over the stockpiles will be limited to avoid soil compaction and subsequent damage to soil structure or the seed bank.	The design of the topsoil stockpiles allows access for trucks to stockpile the material. Demarcation and operational signs are not available at or around the topsoil stockpiles.	Site observations.	0	3	It is recommended that a soil specialist assesses the integrity of the topsoil stockpiles and whether the current stockpiling techniques are adequate. The topsoil stockpiles should be clearly demarcated on site.	SHEQ Department
	Vegetation establishment in disturbed areas will be encouraged as soon as is practical, with growing season and water availability being the primary constraints.	The areas where activities have been completed is successful in terms of self-succession.	Site observations.	3	3	No recommendations.	-
	There will be an incident management system; including procedures and training for dealing with incidents as prescribed within the Environmental Awareness Programme.	<p>This is being undertaken by means of the IsoMetrix system. All observations noted during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental (SHEQ) Department.</p> <p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p> <p>Based on the findings observed on site, specifically relating to water management, it is clear that the Mine is aware of the requirements of water conservation and management, and that ongoing actions are raised and activities implemented, such as the current upgrades in terms of the water containment facilities and channels on site.</p>	Site observations.	3	3	It is recommended that the planning meetings for all areas must be used to present the outcomes of monitoring and present possible causes and actions.	SHEQ Department



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	Major spillage incidents (i.e. chemicals, oils, diesel, etc.) will be reported to the DMR, DWA, DTEC and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.	<p>No reportable incident has been recorded on site in terms of the site interviews. No major spills have taken place, however ongoing spills have been present in areas such as the Load-Out Benetec System and the Sewage Treatment Plants (STPs).</p> <p>Based on site observations, an incident was observed at the Benetec Plant at the Load-Out Facility during 2017, which has not been addressed and was still present during the 2019 audit. The facility has been overflowing for an extended time (beyond the bund wall), with a well-established 'swamp' system with aquatic life already present. The water from this system should be used for dust suppression on the conveyor systems, but based on 2017/2018 on-site interviews, the product received from the Plant is already too wet and additional water cannot be added without compromising the product. The facility received water from the treated sewage water. No water quality data is currently available to determine the nature of the water which has spilled beyond the bunded areas. The SHEQ Department was not informed of this incident during the previous audit, and for the current audit, was not aware of the status quo.</p> <p>According to site interviews, upgrades are planned to reroute sewage water to the JoJo tanks behind the Load-Out workshop, which will reduce the volume off water sent to the Benetec system.</p> <p>The STPs on site are presenting concerns in terms of dirty water management and discharges: * At the Bruce STP, a spill is present outside a manhole of the facility with an odour present in this area. Discharge of the treated water takes place through a pipe into a channel to Bruce PCD This channel is constructed with bricks which is effective for erosion management at the discharge point, but will likely not limit seepage. A poor odour is also present at the channel where the treated sewage discharges, raising concerns in terms of the water quality. * At the King STP at the Workshop, discharge into environment downgradient of the STP was observed with a marshy area created. The treated water should report to the Crusher PCD. In addition to this, the green JoJo tank within the Plant indicates leakage. * At the King Crusher PCD STP, the sump (drying beds) is</p>	Site observations. Water Quality Results, July 2019	0	3	<p>Reporting in terms of Environmental Incidents require revision to ensure that the required reporting is undertaken.</p> <p>The upgrade of the system to send excess water to the proposed area behind the Load-Out Workshop should be implemented urgently.</p> <p>The area around the Benetec System should be remediated.</p> <p>The discharges of the King STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these should be actioned for clean-up or maintenance.</p>	SHEQ Department



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		<p>almost full. The water sump is also very full with the overall system indication a lack of maintenance and inspections. Discharge of treated water was visible from the system into the open environment. This water should report to the Crusher PCD but is discharged via pipe prior to reaching the dam. A poor odour present in this area, raising concerns in terms of the water quality. The filter box into the sump indicates that it is blocked, with spills present.</p> <p>Water quality results were available to confirm the effectiveness of the STP treatment process. According to the report, Faecal Coliforms are present at the Parson STP, the Parson STP HOD (although this was absent for June and July 2019), at the Parson STP HPGR Workshop, Parson Scrap Yard, Bruce STP, Load-Out STP and both King STPs. According to the DWS Guidelines for domestic drinking water a count of more than 20 counts/100ml can cause a significant and increasing risk of infectious disease transmissions. Even when considering the guidelines for irrigation, the target water quality is 1 count/100ml; above this there is a likelihood of contamination of crops and pastures and water treatment is required.</p>					
	If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.	The areas around the Benetec system and STPs as listed above are characterised by poor water quality spills over a long period of time, and no remedial measures have been undertaken to date.	Site observations.	0	3	The areas around the STPs and Benetec system where spills occurred should be remediated as a matter of urgency.	SHEQ Department
	A detailed waste management strategy will be established and implemented.	<p>A Waste Management Procedure is in place on site. In general, the content of the procedure is what has been communicated to the auditors on site.</p> <p>Waste containments are labelled on site, but various areas for improvement were observed in terms of the type of bins, colouring and labelling consistency. The Waste Management Procedure contains the statement: "Hazardous waste must be stored in containers (including lids) made of materials that are compatible with the waste. Hazardous waste containers must be in good condition and free of leaks or any residue on the outside of the container. Unacceptable containers include household detergent and</p>	Waste Management Procedure: 2016-12-06	1	3	<p>It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.</p> <p>It is recommended that hazardous waste skips on site be equipped with lids and be used in accordance with its purpose.</p>	SHEQ Department



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		<p>food service containers. The best container for your hazardous waste is the original container." The hazardous waste skips and containers are generally not covered on site.</p> <p>At the time of the site investigation the Mine was in the process of changing waste management suppliers to Interwaste (Pty) Ltd (Interwaste), which provided a constraint in waste management with various overfull bins and containments present. During the last day of the audit, Interwaste was on site, and clean up has commenced.</p> <p>In terms of the implementation of waste management procedures the following observations were made:</p> <ul style="list-style-type: none"> * At the King Laydown area, littering is present. Dustbins are provided but not in use. * At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently banded. * At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed. * At the King Loading Equipment Workshop, hazardous skips are present, not contained on banded or concreted area and have no roof or covering. * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained. * At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not banded. Hazardous bins are placed on an unlined area. Some drums are stored outside banded areas. * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present. * At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted. 					

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		<ul style="list-style-type: none"> * At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills. * At the TMM Workshop at Bruce, hazardous skips are present with no lids. * At the Transnet Workshop, the hazardous waste bin filled with domestic waste. * At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing. * Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints. * At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included: <ul style="list-style-type: none"> * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary Waste Management Control Officer (WMCO) (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ Waste Management (Pty) Ltd (EnviroServ) has not collected these (although appointed). 					
	Fertilizer will be applied to the topsoil stockpiles prior to vegetation. Based on the analysis obtained during the pre-mining soil survey, additions of calcium, magnesium, nitrate and potassium will be required.	Subsequent EMPs have amended this condition, as self-succession starts on site without the need for fertilisers.	N/A	NLR	NLR	No further recommendations.	-
	A general application of potassium, nitrate and phosphorous fertilizer will be applied at a rate of 400 kg / ha.	Subsequent EMPs have amended this condition, as self-succession starts on site without the need for fertilisers.	N/A	NLR	NLR	No further recommendations.	-
	Small quantities of the fertilizer will be applied at regular intervals across the	Subsequent EMPs have amended this condition, as self-succession starts on site without the need for fertilisers.	N/A	NLR	NLR	No further recommendations.	-

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	site as not to affect the surface and groundwater environments.						
	Pipelines will be monitored continuously and will be maintained to limit spillage	No areas of concern indicating unmaintained pipeline leaks were observed during the site inspection. A scada system is in place monitoring the flows especially between the Paste Disposal Facility and the Beneficiation Plant, as well as within the Beneficiation Plant.	Site observations.	3	3	No further recommendations.	-
	Upon decommissioning of an opencast pit, permanent safety measures will be implemented which should include at least one of these measures <ul style="list-style-type: none"> o Berms o Shaping / Sloping of the surrounding area to ensure no access; o Planting of indigenous thorny vegetation around the pits; o Fencing the pits off. 	The Licence Holder is aware of this condition.	-	T/N	T/N	No further recommendations.	-
Disposal of domestic and Industrial Waste (procedures)	A waste management procedure will be developed. This will cover the storage, handling and transportation of waste.	Compliant.	Waste Management Procedure: 2016-12-06	3	3	No further recommendations.	-
Disposal of domestic and Industrial Waste (Facilities)	Waste collection points will be established on site. Care will be taken to ensure that there will be sufficient collection points with adequate capacity and that these are serviced frequently.	Waste collection points are present on site. Capacity during the site visit was inadequate due to delays in getting Interwaste on site. However, on the third day of the audit Interwaste was on site, and clean up processes commenced.	Site observations.	2	3	Sufficient capacity of bins and containment areas should be available.	SHEQ Department
	Waste will be disposed of at appropriate permitted waste disposal facilities. An agreement will be put in place to ensure that the facility can handle the additional waste.	Domestic waste is disposed of in terms of an approved Waste Management Licence on the onsite landfill site. In terms of the safe disposal certificates, the approved permits or licences indicates availability to receive and disposed of wastes: * PPC Lime Acres, is a member of the National Oil Recycling Association of South Africa (NORA-SA) (expired 31 August 2019); * PPC Lime Acres has an Atmospheric Emissions Licence (AEL) in place, Ref: 23/4/2/58. allowing the facility to use used oil as a partial replacement for coal. * Olegra Oil (Pty) Ltd (Olegra) responsible for used oil removal is also a member of NORA-SA with a membership that has expired on 31 August 2019. * Transportation of dangerous goods registrations are available for the vehicles used by Olegra. These are valid until 19 June 2020. * Oily rags and greases are removed by EnviroServ, the registration certificate as a hazardous waste transporter	PPC Lime Acres NORA-SA Membership No RF025185. Olegra NORA-SA Membership No RF025185. Lime Acres AEL: 23/4/2/58. Emergency Services Transportation for Olegra. Various registrations from the Directorate: Community Services EnviroServ Waste Management Registration	1	3	The up to date and valid registration certificates of waste transporters should be available on file.	SHEQ Department



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		<p>available in the file expired on 13 July 2019. The Mine has however replaced this contract with the services of Interwaste (Pty) Ltd (Interwaste).</p> <p>* Due to operational issues no recycling activities (previously undertaken by M-SHEX Recycling in Kathu) have taken place since February 2019. (The most recent available records are dated February 2019.) No WMLs or registrations are available.</p> <p>* Bidvest Steiner removes the She bins which are taken to Kuruman, where after Compass Waste Services (Pty) Ltd (Compass) removes these for safe disposal. No safe disposal certificates are in place for Bidvest Steiner or Compass on site and the latest records are not available on site.</p> <p>Safe disposal certificates are available for PPC Lime Acres. This includes the manifest which indicates the volumes removed and the percentage water. Should the percentage water be too high, the end user is required to dispose of it at an alternative site as the oil cannot be separated for use. The manifests for the removal of water from the site by EnviroServ is available. Safe disposal certificate from Holfontein Hazardous Waste disposal Facility (Holfontein) is obtained from the facility.</p>	GPT-00-057 (expired 13 July 2019).				
Waste Transport	Hazardous waste will be collected by Waste Tech and will be removed to a permitted hazardous waste disposal facility.	Hazardous Waste is removed by various Licensed companies, and not one company specifically. Interwaste has been appointed to oversee and implement the overall Waste Management System on site.	<p>PPC Lime Acres NORA-SA Membership No RF025185</p> <p>Olegra NORA-SA Membership No RF025185</p> <p>Lime Acres AEL: 23/4/2/58</p> <p>Emergency Services for Olegra.</p> <p>Various registrations from the Directorate: Community Services</p> <p>EnviroServ Waste Management Ref GPT-00-057 (expired 13 July 2019)</p>	TBA	TBA	<p>It is recommended that this condition be amended in line with Regulation 34 of the NEMA. It is not practically possible to make a commitment in the EMP relating to a specific supplier.</p> <p>This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020. The condition should be amended to allow that the backfilling pro</p>	<p>SEQ Department</p>
	Waste will be collected by the Gamagara Municipality and will be removed to the Kathu waste disposal site.	Subsequent to the 2006 EMP, a WML was issued in 2010 for the Khumani Landfill Site. All domestic waste is disposed of at the Licensed Khumani Landfill Site.	Waste Management Licence (Licence Number: 12/9/11/L812/8) - March 2010	TBA	TBA	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. It is not practically possible to make a commitment in the EMP relating to this condition as	<p>SEQ Department</p>



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						subsequent EMPs have allowed for local disposal. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020.	
	If remediation of the soil <i>in situ</i> is not possible, the soils will be classified as waste in terms of the Minimum Requirements and will be disposed of at an appropriate permitted waste facility.	The Licence Holder is aware of this condition. Hydrocarbon soils are considered hazardous in terms of the MSDSs of the various hydrocarbons used on site and are therefore disposed of as hazardous waste.	Site observations.	T/N	T/N	The volumes required for treatment should be calculated and if required the necessary permits should be obtained. Suitable capacity for the storage of contaminated soils must be provided for on site.	SHEQ Department
	Care will be taken to ensure that building rubble does not become polluted or mixed with any other waste. The building rubble will be used to backfill excavations.	Building rubble is screened and sold off (steel). Inert material is disposed to landfill and borrow pits. However, there are very little amounts of building rubble produced by the mine at present.	Site observations.	3	3	No recommendations.	-
	Care will be taken to ensure that scrap metal does not become polluted or mixed with any other waste. The scrap metal will be collected in a designated area for scrap metal (scrap yard). It will be sold to scrap dealers.	The saleable waste skips present on site indicated good waste sorting practices. Saleable waste is also stored interim at the secondary waste storage areas with limited contamination of these wastes present. A very well operated Salvage Yard is present on site.	Site observations.	3	3	No recommendations.	-
	Oil will be collected in suitable containers at designated collection points. The collection points will be bounded and underlain by impervious materials to ensure that any spills are contained. Notices will be erected at each waste oil point giving instructions on the procedure for waste oil discharge and collection. An approved subcontractor will remove oil from site.	In terms of oil removal: * PPC Lime Acres is a member of NORA-SA. This membership was valid until 31 August 2019, * Olegra is also a member of NORA-SA with a membership that was valid until 31 August 2019. * PPC Lime Acres has an AEL in place Ref 23/4/2/58 allowing the facility to use used oil as a partial replacement for coal. * Transportation of dangerous goods registrations are available for the vehicles used by Olegra. These are valid until 19 June 2020. * Oily rags and greases were removed by EnviroServ, the registration certificate as a hazardous waste transporter available in the file expired in July 2019. The Mine has however replaced this contract with the services of Interwaste. Safe disposal certificates are available for PPC Lime Acres. This includes the manifest which indicates the volumes removed and the percentage water. Should the percentage water be too high, the end user is required to dispose of it	PPC Lime Acres NORA-SA Membership No RF025185 Olegra NORA-SA Membership No RF025185 Various registrations from the Directorate: Community Services Emergency Services for Olegra Lime Acres AEL: 23/4/2/58 EnviroServ Waste Management Ref GPT-00-057 (expired 13 July 2019)	0	3	The up to date and valid registration certificates of waste transporters should be available on file. Notices must be put in place at all old oil removal areas providing instructions on the procedure for waste oil discharge and collection. The Licence Holder to ensure that the Waste Management Licences for Holfontein and the other areas used by the waste disposal companies are in place and valid.	SHEQ Department



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		<p>at an alternative site as the oil cannot be separated for use.</p> <p>The manifests for the removal of water from the site by EnviroServ is available. Safe disposal certificate from Holfontein is obtained from the facility.</p> <p>At the Salvage Yard no notices are present which provide instructions on the procedure for waste oil discharge and collection.</p>					
Land Capability	The boundary of the mine and associated infrastructure will be fenced to prevent cattle from having access to potential safety risks and to keep project related activities separate from grazing areas. The fence will be routinely inspected and maintained.	Compliant. The fences are well maintained and fire breaks are in place.	Site observations.	3	3	No recommendations.	SHEQ Department
	Vegetation and animal rescue will be undertaken to ensure the protection and conservation of plant and animal species.	<p>Tree removal permits have been obtained for areas where clearance have been required in the past.</p> <p>In order to ensure that the Mine does not have detrimental impact on the surrounding environments, various ecological studies are undertaken. A biodiversity study was conducted by Scientific Aquatic Services CC (SAS) in 2012. Ongoing updates are undertaken with the 2017 and April 2019 Biodiversity Studies by EnviroSwift (Pty) Ltd (EnviroSwift). The 2019 report states that eight points for continued vegetation monitoring were selected within the mine surface rights area by SAS in 2012 (Vegetation Monitoring Points 1-8), and an additional four monitoring points were selected by EnviroSwift in 2019 (Vegetation Monitoring Points 9-12).</p>	<p>Tree Removal Permit 0012/2017. Licence: NCU 7971117</p> <p>SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019</p>	3	3	No recommendations.	SHEQ Department
	Undertake effective vegetation stripping along with the topsoil removal. This will help to maintain the structural integrity of the soils, and retain the seed source.	Rehabilitation has been limited to the opencast pits and these have been proven to be successful. In a subsequent EMP (Barrier Pillar EMP, 2009) the requirements are firstly to see whether self-succession is successful. Should this not be achieved, it is recommended that samples be taken to identify fertiliser requirements.	-	NLR	NLR	No recommendations.	-
Loss of Grazing Land	The remainder of the proposed mining area, on which no mining activities will take place, will maintain its current land use (wilderness).	<p>Compliant. Mining activities are contained within the mining area.</p> <p>According to the 2019 BAP Update by EnviroSwift, it is the opinion of the specialist that no significant alteration of, or impact to, the vegetation communities associated with Vegetation Monitoring Points 1, 2, 3, 4, 5, 6, 7 and 8 has occurred as a result of mining related activities since the 2017 survey. Changes in vegetation community structure</p>	Site observations. SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019	3	3	No recommendations.	-



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		encountered at the time of the 2019 survey are presumably as a result of the prevailing dry climatic conditions. These unfavourable conditions have resulted in the dormancy of grass species and in an increase in the diversity of drought tolerant/pioneer forb and shrub species. However, no additional alien and invasive species have colonised the areas and no significant bush encroachment was encountered. The report further states that the only monitoring point in which a significant change in vegetation structure was encountered was Vegetation Monitoring Point 2. The dry conditions and apparent overgrazing of the riverine vegetation has resulted in a decrease in grass cover since the 2017 survey and in the proliferation and dominance of annual weeds such as <i>Laggeta decurrens</i> . However, should grazing within this area be managed and should alien and invasive plant species be removed, the vegetation should recover after sufficient rainfall. When considering the area where the river diversion is present, Vegetation Monitoring Points 6, 7 and 9 are the most relevant, together with Vegetation Monitoring Point 2 on the Gamagara floodplains to the north of Parson, with no to limited mining activities (conveyor crossings) taking place.					
	The Beneficiation Plant, and associated infrastructure, Explosives Magazine, Rapid Load-Out Facility and Discard Stockpile will be established on the Remainder Extent and the Remainder of Portion 2 of the farm Parson.	Compliant.	Site observations.	3	3	No recommendations.	-
Natural Vegetation (Loss of Vegetation due to Site Clearing)	Construct roads with appropriate drains, levelling and surfacing to ensure adequate drainage, to reduce compaction and sedimentation.	Compliant.	Site observations.	3	3	No recommendations.	-
	Approaches will be implemented for plant rescue of endangered and red data species and propagation will commence prior to construction.	Tree removal permits have been obtained for areas where clearance have been required in the past.	Tree Removal Permit 0012/2017 Licence: NCU 7971117	3	3	No recommendations.	SHEQ Department
	A conservation-worthy habitat and ecosystem will be identified that could serve as off-sets to compensate for the loss of biodiversity and ecosystem function where necessary. Interested scientific bodies from the McGregor Museum and WESSA will be invited to part in this study.	An Offset Area has been acquired on the farm Watermeyer. This is an area of about 3 500ha. A detailed Biodiversity Management Plan is currently being undertaken.	Site observations.	3	3	The Biodiversity Management Plan should be finalised as soon as possible to allow for the implementation of recommended measures.	SHEQ Department.



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	A list of all the weeds, invader species, and species of conservation importance will be handed to all contractors, this list will also form part of the BKM Mine induction programme and environmental awareness plan.	<p>A Biodiversity Study was conducted by SAS which included the identification of alien and invasive plant species in the Khumani Mining Area, and their eradication requirements. Ongoing updates are undertaken with the 2017 and 2019 Biodiversity Studies by EnviroSwift. The latter study presents a table detailing the alien and invasive plant species identified at the vegetation monitoring points in the surface rights area. In Chapter 6 of the latter report, the requirements for eradication are stipulated.</p> <p>A service level agreement is being compiled with OD Herstelwerke to undertake weed eradication on site. Weed eradication is not a procedure for the induction programme but rather a maintenance procedure.</p> <p>The induction programme provides a discussion on species of conservation importance, but no discussion in terms of invader species.</p>	SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019	1	3	No recommendations.	-
	Should species of rare, protected and / or endemic status be identified on site, the surrounding operations will immediately cease, and these species will be relocated to a suitable habitat.	The Licence Holder is aware of this condition. Tree removal permits are obtained prior to construction activities being undertaken.	Site observations.	T/N	T/N	No recommendations.	SHEQ Department
	Prevention management of fuel wood harvesting (in specific reference to the thorn trees) will take place where required. Harvest fuelwood from footprint of active mining areas where available and make it available to the local communities	Pellets are not used on site, and removed trees are made available through gate release tickets to parties requiring such material.	Site observations.	3	3	No recommendations.	-
	To increase diversity in rehabilitated areas, rehabilitated areas will be mulched with seed bearing hay cut in natural veld areas	Rehabilitation has been limited to the opencast pits and these have been proven to be successful. In a subsequent EMP (Barrier Pillar EMP, 2009) the requirements are firstly to see whether self-succession is successful. Should this not be achieved, it is recommended that samples be taken to identify fertiliser requirements.	-	NLR	NLR	No recommendations.	-
	Vegetation self-succession in disturbed areas will take place continuously, parallel to the mining activities.	Rehabilitation has been limited to the opencast pits and these have been proven to be successful.	Site observations.	3	3	No recommendations.	-
	Maintenance and monitoring of rehabilitated areas will take place.	<p>The Mine is still in the ramp-up period with opencast being established. Various opencast pits have been backfilled, which mainly include the smaller satellite pits (BC04). Other backfilling activities include:</p> <p>* The backfilling of Opencast Pit BC01 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan. The backfilling plan allows for a</p>	<p>Inspection checklists for Environmental Department (available at Durelle Carstens).</p> <p>Site observations.</p>	3	T/N	No recommendations.	-



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		<p>planned 15% backfill per annum over a period of 6-7 years;</p> <p>* Opencast Pit BC02 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC02 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan;</p> <p>* Opencast Pit BC03 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC03 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; and</p> <p>* The enviro berm associated with Opencast Pit BA still requires completion of the remaining 40%.</p> <p>Areas in the Mine are divided into Workshops, Wash bays, Plant and Mining. Checklists are available for each of these areas. Environmental Officers are appointed for the Bruce, King and Parson Load-Out Facilities. Monitoring schedules are in place for each of these sites, planned a year ahead. In terms of the checklists, the mining checklists make specific reference to "any rehabilitation currently in progress and conducted correctly/according to the EMPr".</p>					
	The mine is planned in such a way as to remain outside of the 1:100-year flood line.	Compliant. Where activities are required in the flood lines, WUL approvals have been obtained. Various river crossings are in place and some facilities within 1:100 year floodline. This condition cannot be met in terms of the manner in which this condition is stated.	WUL Ref: 10/D41J/BC1J/2122 (16 March 2013)	TBA	TBA	It is recommended that this condition be amended to state that "the mins is planned in such a way to remain outside of the 1:100-year floodline and where encroachment is required that the necessary authorisation is applied for in terms of NEMA and NWA.	Environmental Department
	All areas disturbed by the BKM Mine activities will be vegetated using a basic seed mix. The approach will entail a combination of pioneer type grasses and perennial grasses	Rehabilitation has been limited to the opencast pits and these have been proven to be successful. In a subsequent EMP (Barrier Pillar EMP, 2009) the requirements are firstly to see whether self-succession is successful. Should this not be achieved, it is recommended that samples be taken to identify fertiliser requirements.	Site observations.	NLR	NLR	No recommendations.	-
	Weed eradication and control will be actively managed during ongoing mining operations and decommissioning. Local people will be employed to undertake continues weed management.	<p>A service level agreement is being compiled with OD Herstelwerke to undertake weed eradication on site. The services have however already commenced. This company is a Small, Medium and Micro-sized Enterprise (SMME) located in Olifantshoek.</p> <p>In order to ensure that the Mine does not have detrimental impact on the surrounding environments, various ecological studies are undertaken. A biodiversity study was conducted by SAS in 2012. Ongoing updates are undertaken with the 2017 and April 2019 Biodiversity</p>	Site observations. SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019	1	3	<p>The Licence Holder should manage livestock grazing within the mining area so to ensure that overgrazing does not occur.</p> <p>In the area in the vicinity of Vegetation Monitoring Point 1 specifically, the removal of the alien species, with special mention of <i>Cirsium vulgare</i> and <i>Argemone ochroleuca</i>, must take place in order to comply with existing</p>	SHEQ Department



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		<p>Studies by EnviroSwift (Pty) Ltd (EnviroSwift). The 2019 report states that eight points for continued vegetation monitoring were selected within the mine surface rights area by SAS in 2015 (Vegetation Monitoring Points 1-8), and an additional four monitoring points were selected by EnviroSwift in 2019 (Vegetation Monitoring Points 9-12).</p> <p>According to the 2019 BAP Update by EnviroSwift, it is the opinion of the specialist that no significant alteration of, or impact to, the vegetation communities associated with Vegetation Monitoring Points 1, 2, 3, 4, 5, 6, 7 and 8 has occurred as a result of mining related activities since the 2017 survey. Changes in vegetation community structure encountered at the time of the 2019 survey are presumably as a result of the prevailing dry climatic conditions. These unfavourable conditions have resulted in the dormancy of grass species and in an increase in the diversity of drought tolerant/pioneer forb and shrub species. However, no additional alien and invasive species have colonised the areas and no significant bush encroachment was encountered. The report further states that the only monitoring point in which a significant change in vegetation structure was encountered was Vegetation Monitoring Point 2. The dry conditions and apparent overgrazing of the riverine vegetation has resulted in a decrease in grass cover since the 2017 survey and in the proliferation and dominance of annual weeds such as <i>Laggera decurrens</i>. However, should grazing within this area be managed and should alien and invasive plant species be removed, the vegetation should recover after sufficient rainfall. When considering the area where the river diversion is present, Vegetation Monitoring Points 6, 7 and 9 are the most relevant, together with Vegetation Monitoring Point 2 on the Gamagara floodplains to the north of Parson, with no to limited mining activities (conveyor crossings) taking place.</p> <p>During the site visit various areas with alien invasive species encroachment were present.</p>				<p>legislation (National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) Alien and Invasive Species Regulations, GN R598 of 2014). <i>Laggera decurrens</i>, an annual weed, must also be controlled. These species must be removed from the Gamagara River.</p> <p>In the area in the vicinity of Vegetation Monitoring Point 3 specifically, the encroachment of <i>Senegalia mellifera</i> subsp. <i>detinens</i> and the resultant competition of this species with grasses and forbs causes a decrease in overall floral species diversity and a decrease in the overall grazing carrying capacity of the veld. The unnatural proliferation of <i>S. mellifera</i> subsp. <i>detinens</i> within the surface rights area in general must therefore be controlled. Advice must be sought from an experienced contractor in order to manage the proliferation of this species, particularly within areas to the northeast of Vegetation Monitoring Point 3.</p> <p>In general the Licence Holder should continue to monitor the area in order to ensure that alien and invasive species do not encroach into the vegetation.</p>	
	Selected indigenous trees and shrubs will be planted into larger rehabilitated areas to facilitate reestablishment of woody species.	Indigenous trees have been successfully planted in along the N14/ Khumani boundary.	Site observations.	3	3	No recommendation.	-
	Maintain re-vegetated areas by means of regular watering, weed controls and cattle-grazing exclusion until the vegetation has settled	The area is in a water scarce environment. Watering of vegetation is not practical and suitable for this setting.	Inspection checklists for Environmental (available at Durelle Carstens).	TBA	TBA	This condition should be amended as part of Regulation 34 of the NEMA.	SHEQ Department.



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			Site observations.				
	Bi-annual ecological monitoring of rehabilitated areas will be undertaken	An ecological monitoring report for the overall mining area is being undertaken every second year.	Ecological Assessment and Monitoring is being undertaken by EnviroSwift for the Mine. The latest report is dated April 2019.	T/N	T/N	It is recommended that this condition be amended as part of Regulation 29 Part 1 as an administrative amendment.	SHEQ Department
	Progress of rehabilitation will be monitored in terms of compliance with management plan and success or failure of stated objectives	Compliant, annual rehabilitation plans are being developed and audited with each subsequent cycle.	May 2019 Financial Provision Closure Assessment.	3	3	No recommendations.	-
	Livestock will be prevented from grazing rehabilitated areas until monitoring indicates that a self-sustaining plant community has established	Rehabilitated areas are within the mining activities (i.e. backfilled pits). The mining rights area is fenced off. No areas of concern were observed.	Site observations.	3	3	No recommendation.	-
	Storm water will be diverted around areas being rehabilitated until the areas are self-sustaining	The Licence Holder is aware of this condition. The practices currently implemented proofs to be successful with well rehabilitated opencast pits on site.	-	Dup	Dup	No recommendation.	-
Natural Vegetation (Alien Plant Invasion)	A regular weed-control programme will be implemented to eradicate existing invader plants and to prevent new invasions during ongoing opencast mining operation and decommissioning.	<p>Weed eradication is currently being undertaken as an "as required" process.</p> <p>During the site visit weeds were observed throughout the areas visited.</p>	Site observations.	0	3	<p>The Weed Eradication Schedule being developed by the Mine should be finalised and implemented.</p> <p>The Licence Holder should manage livestock grazing within the mining area so to ensure that overgrazing does not occur.</p> <p>In the area in the vicinity of Vegetation Monitoring Point 1 specifically, the removal of the alien species, with special mention of <i>Cirsium vulgare</i> and <i>Argemone ochroleuca</i>, must take place in order to comply with existing legislation (NEMBA Alien and Invasive Species Regulations, GN R598 of 2014). <i>Laggera decurrens</i>, an annual weed, must also be controlled. These species must be removed from the Gamagara River.</p> <p>In the area in the vicinity of Vegetation Monitoring Point 3 specifically, the encroachment of <i>Senegalia mellifera</i> subsp. <i>detinens</i> and the resultant competition of this species with grasses</p>	SHEQ Department



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						and forbs causes a decrease in overall floral species diversity and a decrease in the overall grazing carrying capacity of the veld. The unnatural proliferation of <i>S. mellifera</i> subsp. <i>detinens</i> within the surface rights area in general must therefore be controlled. Advice must be sought from an experienced contractor in order to manage the proliferation of this species, particularly within areas to the northeast of Vegetation Monitoring Point 3. In general, the Licence Holder should continue to monitor the area in order to ensure that alien and invasive species do not encroach into the vegetation.	
	Local people will be involved in the weed-control programme.	A service level agreement is being compiled with OD Herstelwerke to undertake weed eradication on site. The services have however already commenced. This company is a SMME located in Olifantshoek.	Site observations.	3	3	No recommendations.	-
Natural Vegetation (Increase harvesting pressure on plant resources)	A monitoring programme will be implemented to regulate the harvesting of plant material and fuelwood from the natural vegetation surrounding the mine. The weed management programme must continue for three (3) years after closure.	Pellets are not used on site, and removed trees are made available through gate release tickets to parties requiring such material. BAP assessments are conducted by the mine every two years.	Site observations. SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019	3	3	No recommendations.	-
Animal Life (Impact on fauna due to increased human activity)	The procedure in the construction phase must occur in such a way as to ensure that any animal species that may be in danger will be given an appropriate amount of time to be able to move to another location.	No construction activities are taking place.	-	NLR	NLR	No recommendations.	-
	The poaching and hunting of animals will be strictly forbidden.	This is addressed as part of the induction programme. In terms of the Training Manual for Occupational Hygiene and Environmental Control no reference is made to the protection of animals or the prohibition of poaching or hunting. This is important due to the presence of antelope (Kudu) on site.	Induction programme observed. Training Manual for Occupational Hygiene and Environmental Control.	3	3	It is recommended that the requirements in terms of zero hunting and poaching on site be incorporated as part of training materials.	SHEQ Department
	All employees will be educated on the procedures to follow and the environmental restrictions regarding all environmental aspects (including	Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills.	Site Observations	0	3	It is recommended that the requirements in terms of zero hunting and poaching on site be incorporated as part of training materials.	SHEQ Department



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	poaching and hunting), this will also form part of the Environmental Awareness Plan.	<p>The following ongoing meetings are undertaken on site:</p> <ul style="list-style-type: none"> * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness. <p>Based on the findings observed on site, specifically relating to water management, it is clear that the Mine is aware of the requirements of water conservation and management, and that ongoing actions are raised and activities implemented, such as the current upgrades in terms of the water containment facilities and channels on site.</p> <p>In terms of the Training Manual for Occupational Hygiene and Environmental Control no reference are made to the protection of animals or the prohibition of poaching or hunting. This is important due to the presence of antelope (Kudu) on site.</p>					
Animal Life (Impact on animal life due to power supply)	Remedial measures will be implemented to ensure the safety of the fauna (i.e. birds) in the BKM Mine area (i.e. bird flight diverters). These will include:	<p>The Licence Holder follows the condition except for flight diverters and bird perches. In the past flight diverters have been established on all power lines and no activities are undertaken within any sensitive areas. During the 2019 audit, no flight diverters were present on the Khumani areas.</p>	Site observations.	1	3	The required flight diverters and bird perches should be implemented as per the WUL and EMP requirements.	SHEQ Department
	Flight diverters will make the cables more visible and will prevent negative interaction by birds with power lines. The focus and placement of the flight diverters will be at areas where pans are present and where the cables cross the identified water courses.						
	Bird perches will be fitted to the top of each pylon structure to reduce the potential for electrocution should bird perch on the cross-arms of the power lines.						
	Appropriate insulation of structures (especially on the pylons) will be carried out to prevent electrocutions of						



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	birds (in specific raptors). It is recommended that where there is more than one conductor on one side of the pylon, the top conductors should be insulated.						
	Impact on the flora will be limited as the power lines will be established on planned servitudes, which will be utilised for conveyors and pipelines.						
	Continuous inspections and routine maintenance will be undertaken.						
Surface Water (Contamination of surface water runoff)	There will be no clearing of vegetation or stripping of soils for construction purposes until clean water diversions (i.e. berms and cut-off trenches) and dirty water collection facilities (for rainwater falling on the site) have been established.	All clean and dirty water systems are in place on site. Most construction activities have been completed.	Site observations.	3	3	No recommendations.	-
	Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices.	<p>Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. Due to the various spills of water on site the manner in creating awareness is questioned.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p>	Contractor Management Procedure (Document Number: SP_155129).	2	3	<p>It is recommended that more attention be given in the discussion points to the conditions of the environmental and water related permits, the importance thereof, and the legal obligations and risks associated with not adhering to these. Another area worth including, would be when environmental, water and/or waste applications are triggered and how these could be avoided.</p> <p>It is recommended that the Contractor Management Procedure be updated to make provision for a list of all Environmental Authorisations, key environmental requirements (topsoil management, vegetation clearance, water management philosophy and waste management). It is further recommended that the liabilities for non-compliance in terms of the NWA, and NEMA be stipulated in this document to ensure ongoing awareness of the risks associated with non-compliance.</p>	SHEQ Department
	No mining activities will take place within the Gamagara River, the flood	Compliant.	Site observations.	3	3	No recommendations.	-



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	plain or any of the pans present on the BKM Mine property.						
	Storm water controls at all sites of mine infrastructure will be established prior to the commencement of construction activities.	All clean and dirty water systems are in place on site. Most construction activities have been completed.	Site observations.	Dup	Dup	No recommendations.	-
	Berms, to serve as diversion systems, will be constructed upstream of the opencast pits to ensure that clean water is kept separate from dirty water and to divert clean water away from the contaminated areas, this will also serve as a safety measure to reduce water inflow into the opencast pit areas.	Compliant. No GN704 exemption is however in place in the WUL for the use of waste rock in the construction of berms.	Site observations.	2	3	Application for exemption from Regulation 5 of GN704 (1999) should be applied for and is in progress in terms of the 2019 WULA.	SHEQ Department
	All the storm water runoff from the upstream catchment of the King crusher and Bruce crusher will be diverted around the affected areas by means of berms and channels and will be sized for a 1:50 year storm event.	The King and Bruce Crusher areas are located on elevated areas and cannot receive water from upgradient. The Secondary and Tertiary crushers are located in the plant area which is fully enclosed as a dirty water area.	Site observations.	3	3	No recommendations.	-
	Berms will be constructed upstream and downstream of the dumps and stockpiles to ensure that clean water is kept separate from dirty water. Water contained in the berms downstream will evaporate. Berms will be sized for a 1:50 year storm event	Berms are no longer present downgradient of the dumps. This is allowed for in the 2019 Mine Residue Deposit Designs.	Mine Residue Deposit Designs, 2019	0	3	It is recommended that berms be constructed upgradient and downgradient of the Low-Grade ROM Stockpiles, Discard Dump and WRD to contain unnecessary sedimentation and prevent sediment from entering the storm water systems.	SHEQ & Engineering Department
	Any storm water runoff from the outer slopes will contain some eroded residue solids. In order to prevent this from discharging into the surrounding environment, catchment paddocks and/or catchment dams will be provided along the perimeter of the dumps, where deemed necessary.	Paddocks, initially present at the Bruce Low-Grade ROM Stockpile, are no longer present downgradient of the dumps. Paddocks are only present downgradient of the Discard Dump.	Site observations.	0	3	It is recommended that paddocks be constructed downgradient of the Low-Grade ROM Stockpiles, Discard Dump and WRD to contain unnecessary sedimentation and prevent sediment from entering the storm water systems.	SHEQ & Engineering Department
	The paddocks are sized to contain the peak runoff from the outer slopes expected from the 1:50 year recurrence interval storm and allow for sedimentation of any eroded solids and evaporation of storm runoff. The catchment paddocks will require periodic cleaning of sediment. This should form part of normal operation and maintenance.	Paddocks, initially present at the Bruce Low-Grade ROM Stockpile are no longer present downgradient of the dumps. Paddocks are only present downgradient of the Discard Dump.	Site observations.	Dup	Dup	It is recommended that paddocks be constructed down gradient of the Low-Grade ROM Stockpiles, Discard Dump and WRD to contain unnecessary sedimentation and prevent sediment from entering the storm water systems.	SHEQ & Engineering Department



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	Dirty water will be stored in-pit at the opencast pits, and will be utilized for dust suppression on the mine haul roads and as operational water in the plant.	When excess water is present this could be utilised for dust suppression. The need for this has however not arisen.	Site observations.	3	3	No recommendations.	-
	Storm water runoff from the crusher areas will be collected in sumps from where it will be pumped to silt traps. The water from the silt traps will be decanted to pollution control dams. Seasonally wet portions of the storm water dams will be lined with synthetic liners/ concrete.	Sumps/ Settling Dams around the Bruce Crusher were observed to be adequate, however concerns are present at the King Crusher. At the King New Stockpile Dam various concerns were observed relating to the design of the facility, specifically relating to the channelling of water into the dam. No defined channel has been designed to channel water from the Crusher area into the settling sump of the Dam, resulting in various erosion gulleys leading to uncontrolled water entering the dam and storm water not entering the dam as required. Water from the crusher stockpile makes its way down the conveyor route and ponds at the first depression beneath the culvert.	Site observations.	1	3	The design of the New Stockpile Dam should be investigated by an engineer. The upstream catchments routing of water should be investigated to ensure that the water enters the required dam system. Where water flows down the conveyor path, it is recommended that a pump be implemented within the first depression (this area should be formalised for such purpose) to pump water back to the Storm Water Dam. The road upgradient of the New Stockpile Dam should be equipped with fit for purpose erosion measures to manage the formation of erosion gulleys along this linear infrastructure, which is also a stability concern.	SHEQ & Engineering Department
	All pollution control dams will be lined with a synthetic liner system to minimise seepage. All the pollution control dams are sized to contain the 1:50 year storm event, including a 0.8 m freeboard.	The two Parson Storm Water Dams and Bruce Storm Water Dam is designed in terms of approved designs, specifically allowing for lining of the seasonally wet portion. This is approved as such in the WUL. The Paste Disposal Return Water Dam is lined. The Plant Process Water Dam is lined. The King PCD and New Stockpile Dams are not lined. Freeboard of these facilities was well maintained.	Site observations.	0	3	The EMP should be updated to reflect the approved designs as per the Water Use Licence. The designs of the unlined facilities should be investigated to reflect the philosophy of having the area lined which is seasonally under water. The reason for this agreement with the DWS was the fact that liner would be damaged in the sun if permanently dry.	SHEQ & Engineering Department
	Adequate culverts will be provided at each river crossing and drainage channel to allow for a 1:100-year storm event.	Compliant.	Site observations.	3	3	No recommendations.	-
	The dumps will be constructed in such a way that dust and water erosion is limited.	Erosion was observed at the Discard Dump at Parson and on the Bruce Low-Grade ROM Stockpile and on the eastern slopes of the KM02 WRD. In terms of the dust monitoring results, the results indicate that the dust fall out on the boundaries of the mine is well within regulatory limits.	Site observations. Dust monitoring results, 2018	1	3	Erosion control measure must be put in place on dumps.	SHEQ & Engineering Department
	Stockpiles will be constructed in such a way to ensure stability and thereby	The Overburden and Low-Grade Stockpiles are currently characterised by very steep slopes. Ensuring that these are designed to be free draining with a slope to blend into the	Site observations.	1	3	It is recommended that paddocks be constructed downgradient of the Low-Grade ROM Stockpiles, Discard Dump	SHEQ & Mining Department



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	preventing the possibility of wash down.	surrounding environment will not be possible without extending the footprint area. Limited to no wash down was present during the site inspections.				and WRD to contain unnecessary sedimentation from entering the storm water systems.	
	The topsoil that is collected will be stockpiled in such a way that dust and water erosion is limited.	The topsoil stockpiles are well vegetated and indicated limited contribution to dust in the area. The designs of these stockpiles should however be investigated based on the design requirements as stipulated in the EMP (1.5m high lifts).	Site observations.	2	3	It is recommended that a soil specialist assesses the integrity of the topsoil stockpiles and whether the current stockpiling techniques are enough. This is specifically based on the height of the stockpiles and the volumes of traffic over these facilities. The EMP should be updated to make provision for new topsoil management practices to ensure that the practices on site can be undertaken in a manner to protect the integrity of the soil resources. Where this is not possible, the Mine will have to investigate the need for soil fertilisation in consultation with the soil specialist.	SHEQ Department
	There will be two principal components of the runoff and storm water control system associated with the Paste Disposal Facility, these are: 1) A containment system for contaminated runoff generated on the downstream embankment slopes. 2) Diversion works to ensure that uncontaminated storm water runoff does not enter the paste disposal facility and become contaminated.	Due to the mining operations around KM02 WRD, the storm water trenches upgradient of this facility have been impacted. This results in an increase of storm water entering the area around the surge dam. For this reason, the engineers are investigating the development of larger pumping capacities from the Return Water Dams to the Plant and new designs of the KM02 WRD.	Site observations.	1	3	The designs as presented in the 2019 Mine Residue Deposits Designs should be implemented. A Code of Practice should be developed for the disposal of waste rock to achieve the design perimeters.	Engineering Department
	Clean Water Diversion - It is a legal requirement that all clean water runoff arising from an external catchment be prevented from flowing onto the disposal facility and consequently becoming contaminated. The storm water diversion systems are sized to contain the peak runoff from the external catchment expected from the 1:50 year recurrence interval storm.	No berms are present around the Mine Residue Deposits to avoid clean water from entering these areas.	Site observations.	1	3	Berms and paddocks should be implemented in accordance with the EMP.	Engineering Department
	The mining operations will operate with a closed water circuit (reuse and recycling), to conserve water effectively, hence no water will be	Water is diverted to the PCDs. The only pumps observed to be operational were the ones at the Plant and at the Bruce PCD. The closed water circuit is not implemented optimally.	Site observations.	1	3	The recirculation plans between the PCDs and the Plant should be implemented as soon as possible and within an approved WUL.	SHEQ Department



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	discharged into the surrounding environment.	It should be noted that the intention of the Storm Water Dams is to be operated as empty - i.e. water circulation is to be implemented. Pumps are in place at the Bruce and Parson Storm Water Dams, but the reuse and circulation are not optimised and water volumes beyond the concrete sumps are present, and therefore such water is not contained and will seep into subsurface. The Mine is currently implementing upgrades in the Plant area by lining all dirty water channels and have also developed new designs for the PCDs to increase water pumping between these systems and the Plant.					
	Dirty water will be stored in-pit at the King / Mokaning operations, after which it will be pumped into the paste disposal facility's settling dams	When excess water is present this could be pumped to the settling dams. The need for this has however not arisen.	Site observations.	T/N	T/N	When excess water is present this could be pumped to the settling dams. The need for this has however not arisen.	SHEQ Department
	Dirty water will be stored in-pit at the Bruce operations, from where it will evaporate	Compliant.	Site observations.	3	3	No recommendations.	-
Surface Water (Wash-down of soils into sensitive surface water areas)	Storm water draining systems (i.e. trenches, berms etc.) will be constructed down gradient of the mining infrastructure to prevent wash down soil from entering the sensitive surface water areas.	A detailed Storm Water Management Plan was developed and implemented for the Mine. No discharges are taking place on site. This condition has not been reassessed for the WRDs, however the overall mining area is contained by means of designated storm water trenches and not washdown into open areas were observed.	Site observations.	3	3	No recommendations.	-
	The perimeter or footprint of the plant and surrounding infrastructure (stockpiles etc.) will be inspected to see whether storm water is flowing off site to the veld. If such an activity occurs and the water contains pollutants in the form of fine ore particles, measures must be implemented for these particles to be contained prior to discharge	Areas in the Mine are divided into Workshops, Wash bays, Plant and Mining. Checklists are available for each of these areas. Environmental Officers are appointed for the Bruce, King and Parson Load-Out Facilities. Monitoring schedules are in place for each of these sites, planned a year ahead. In terms of the checklists, the Workshop, Wash bay, Fuel Bay and Stores, as well as the Plant, checklists make specific reference to "Storm water/wash water trenches clean - no vegetation, silt, blockages of any kind."	Inspection checklists for Environmental Department (available at Durelle Carstens). Site observations.	3	3	No further recommendations	SHEQ Department
Surface Water (Alteration of drainage patterns)	The channel diversions will be properly engineered and there will be no significant impact on local catchment.	Compliant. The construction of this facility has been completed.	Site observations.	3	3	No recommendations.	-
	Gabions and Rheno mattresses will be established in order to stabilize the channel diversion as well as stabilize the flow velocity should a 1:100-year flood take place, to ensure that no erosion will occur when the channel reaches the initial channel downstream of the mining operation.	Compliant.	Site observations.	3	3	No recommendations.	-



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	Dirty water arising from any dirty area, including water seeping from the stockpiles or any other activity, will be collected in the containment dams.	A detailed Storm Water Management Plan was developed and implemented for the mine. No discharges are taking place on site. Water reports to the various PCDs on site.	Site observations.	3	3	No recommendations.	-
	The clean water systems (including the diversion channel), as well as the mine dirty water dams will have a minimum freeboard of 0.8 m above full supply, to ensure that no spillages occur.	Compliant, no areas of concern were observed in terms of the freeboard of dams.	Site observations.	3	3	No recommendations.	SHEQ & Engineering Department
Water Use Licence application	The mine will not abstract more water from the Vaal Gamagara Pipeline that that what is allocated by contract (provision amount).	Compliant. Currently the Sedibeng Scheme (formerly the Vaal Gamagara Pipeline) cannot fulfil supplying the Mine with the agreed volumes.	Site observations.	3	3	The Mine will be investigating emergency water supply options, such as groundwater from suitable aquifers in the area in the event when the pipeline scheme cannot supply enough water.	SHEQ Department
	Due to the shortage of water in the area, the mining operations will operate with a closed water circuit (reuse and recycling), to conserve water effectively, hence no water will be discharged into the surrounding environment. Should water be dewatered from the opencast pits the water will be used by the mine in place of borehole or Vaal Gamagara Water.	<p>During the site visit the following was observed in terms of findings relating to poor water management:</p> <ul style="list-style-type: none"> * The intention of the Storm Water Dams is to be operated as empty - i.e. water circulation is to be implemented. Pumps are in place at the Bruce and Parson Storm Water Dams, but the reuse and circulation are not optimised and water volumes beyond the concrete sumps are present, and therefore such water is not contained and will seep into subsurface. Designs have been finalised to improved water circulation and infrastructure in these areas to optimise water return. * A major incident was observed at the Benetec Plant at the Load-Out Facility. The facility has been overflowing for an extended time (beyond the bund wall), with a well-established 'swamp' system with aquatic life already present. The water from this system should be used for dust suppression on the conveyor systems, but based on 2017/2018 on-site interviews, the product received from the Plant is already too wet and additional water cannot be added without compromising the product. The facility received water from the treated sewage water. No water quality data is currently available to determine the nature of the water which has spilled beyond the bunded areas. * Concerns in terms of operating procedures at the wash bays at both the King and Bruce workshops were present. The facilities presented incomplete infrastructure (i.e. pumps uncoupled). Based on the on-site observations, clean water is now used in the washing processes, with water accumulating in the wash bays. The layout of the facilities also indicated that settling of suspended solids is not optimised, with water being pumped into the incorrect compartments (King Wash Bays). Both wash bays were full 	Site observations.	1	3	<p>The designs and water circulation of the wash bays, as well as the Benetec Plant Tank at the Load-Out Facility should be investigated where ongoing concerns are raised.</p> <p>Operational procedures for maintenance and inspections on site at the STP, wash bays and receiving tanks for treated water should be implemented.</p>	Engineering Department



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		<p>which indicated capacity constraints. Silt from the wash bays, observed at the Bruce area specifically, is stored uncontained next to the wash bay areas. Removal practices and procedures are not in place. The area is not designed to dry or store this material. Based on past waste classification projects undertaken at Khumani this is a Type 3 hazardous waste and should be stored accordingly. Classification of this waste is currently underway.</p> <p>* At the King Wash Bay at the Oil sump, the skimmer was located outside of the sump area – the operational status of this wash bay is questioned and could not be confirmed. The first sump was very silted. The second sump also indicated oils and during the site inspection a water truck stopped to fill up from this sump – this was stopped by the Environmental Officer. Both sumps/ pond skips indicate mixing of water and are not operated as an oil separation system.</p> <p>* At the Bruce Wash Bay, the piping system indicated that the wash bay system receives clean water from the Sedibeng Pipeline Scheme, which is not good practice in terms of water demand and conservation management.</p> <p>* At the King Water Filling Point, spills from the water filling point were observed during the site visit, which are creating an erosion gully. Water losses are experienced in this area as it is uncontained. According to the interviews and clarification provided by the site personnel, the run-off from the water refilling point is flowing into a section next to Paste Disposal Facility compartment 3A. According to Leonard Gregan from SSMS, this area is going to form part of proposed Return Water Dam #3 (note based on latest discussions on site, is likely that Return Water Dam 3 will not be constructed in the short to medium term).</p> <p>* At the King Drilling and Ancillary Workshop, pressure washing practices in the Workshop results in water running off into uncontained areas. Plans are however in place to include trenches in the design, with the presence of construction activities for trenches observed during the site visit.</p> <p>* At the New Stockpile PCD at King, water bypasses the dam towards the conveyor road crossing. This facility is not effectively maintained to serve the purpose of capturing dirty water runoff as there is no formal drainage into this dam.</p> <p>However when considering the requirement of the WUL, the Mine has undertaken various studies and are in the</p>					



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		<p>process of implementing these to optimise water management:</p> <p>* The mine has appointed SLR Consulting (Africa) (Pty) Ltd (SLR) to assess the operational water balance and to develop a Water Conservation and Demand Management Plan (WCDMP).</p> <p>* In addition to this, the Mine has appointed Geo Tail to assess the overall storm water management plan of the site and undertake the required updates. These studies have informed the current WULA Amendment process.</p> <p>Various water optimisation projects are currently underway, which include: Pipeline from Parson Plant SWD to the Beneficiation Plant; potential new Return Water Dam at the Paste Disposal Facility (subject to Environmental and Water Use Approval); potential new Braithwaite tanks at King to optimise water storage in closed containers; more effective storage of water for dry periods in Buffer Dams with potential evaporation measures; and lastly the lining of channels in the Plant area, which have received great emphasis and was observed on site.</p>					
Groundwater (Impact on groundwater quality due to the establishment of surface infrastructure)	Wastage of mined product or mine waste outside the allocated dirty water management area during the construction phase will be prevented	No construction activities are taking place.	Site observations.	NLR	NLR	No recommendations.	SHEQ Department
	The drains and cut-off trenches (storm water management system) around the proposed open pits will be installed before commencing with pit development.	Compliant.	Site observations.	2	3	Application for exemption from Regulation 5 of GN704 (1999) should be applied for.	SHEQ Department
	No construction of any water management measures, such as the storm water management berms, or the haul roads will be undertaken with carbonaceous material.	Compliant.	Site observations.	3	3	No recommendations.	-
	Dirty water will be contained in fit-for-purpose designed facilities, which will limit infiltration of contaminated water to the groundwater.	* It should be noted that the intention of the Storm Water Dams is to be operated as empty - i.e. water circulation is to be implemented. Pumps are in place at the Bruce and Parson Storm Water Dams, but the reuse and circulation are not optimised and water volumes beyond the concrete sumps are present, and therefore such water is not contained and will seep into subsurface. Designs have been	Site observations.	0	3	<p>The discharges of the STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these</p>	SHEQ & Engineering Department



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		<p>finalised to allow for improved water circulation and infrastructure in these areas to optimise water return.</p> <p>* At the Load-Out Storm Water Dam, a pump is present but is not connected to the internal infrastructure to allow for the recirculation of water. A dust suppression tap-off point has been constructed to the southwest of the facility but is not linked thereto. The dam is also not constructed in a such a way to channel water to the contained area in a formalised manner, and the presence of long-term ponding is observed below the discharge point of the concrete channels, south of the concrete sump.</p> <p>* North of the railway siding water is accumulating into the borrow pits, the source of this water is not fully understood, but it may be a likely result of subsurface drainage from the upgradient Storm Water Dams at Parson.</p> <p>The STPs on site are presenting concerns in terms of dirty water management and discharges:</p> <p>* At the Bruce STP, a spill is present outside a manhole of the facility with an odour present in this area. Discharge of the treated water takes place through a pipe into a channel to Bruce PCD. This channel is constructed with bricks which is effective for erosion management at the discharge point, but will likely not limit seepage. A poor odour is also present at the channel where the treated sewage discharges, raising concerns in terms of the water quality.</p> <p>* At the King STP at the Workshop, discharge into environment downgradient of the STP was observed with a marshy area created. The treated water should report to the Crusher PCD. In addition to this, the green JoJo tank within the Plant indicates leakage.</p> <p>* At the King Crusher PCD STP, the sump (drying beds) is almost full. The water sump is also very full, with the overall system indication a lack of maintenance and inspections. Discharge of treated water was visible from the system into the open environment. This water should report to the Crusher PCD but is discharged via pipe prior to reaching the dam. A poor odour present in this area, raising concerns in terms of the water quality. The filter box into the sump indicates that it is blocked, with spills present.</p> <p>Water quality results are available to confirm the effectiveness of the STP treatment process. According to the report, Faecal Coliforms are present at the Parson STP,</p>				<p>should be actioned for clean-up or maintenance.</p> <p>The Water Optimisation Project should be implemented as soon as possible once approved in the WUL</p> <p>The design of the King Crusher Dam should be investigated by an engineer.</p> <p>The upstream catchments' routing of water should be investigated to ensure that the water enters the required dam system.</p> <p>Where water flows down the conveyor path, it is recommended that a pump be implemented within the first depression (this area should be formalised for such purpose) to pump water back to the storm water dam.</p> <p>The road upgradient of the Crusher Dam should be equipped with fit for purpose erosion measures to manage the formation of erosion gulleys along this linear infrastructure, which is also a stability concern.</p>	



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		the Parson STP HOD (although this was absent for June and July 2019), the Parson STP HPGR Workshop, Parson Scrap Yard, Bruce STP, Load-Out STP, and at both King STPs According to the DWS Guidelines for domestic drinking water) - a count of more than 20 counts /100ml can cause a significant and increasing risk of infectious disease transmissions. Even when considering the guidelines for irrigation the target water quality is 1 count /100ml; above this there is a likelihood of contamination of crops and pastures and water treatment is required.					
	Preparation, including compaction of the foundation layer for the low-grade and hard rock stockpile areas will be undertaken with the purpose of limiting infiltration of contaminated water to the groundwater.	Compliant.	Site observations.	3	3	No recommendations.	-
	The size of compacted areas must be minimised to as small as practical.	Compliant.	Site observations.	3	3	No recommendations.	-
	Should it be indicated through monitoring and investigation by an independent qualified person that any legitimate groundwater users are impacted upon in terms of quantity or quality of borehole water (based on monitoring data), alternative water sources will be made available within the capabilities of the mine and mutually agreed to by the parties.	The Licence Holder is aware of this condition. At the present time the mine is not undertaking dewatering activities. Water abstraction is however planned and in the process of a WULA. For this reason, a detailed numerical model has been undertaken.	Site observations.	T/N	T/N	No recommendations.	-
	Monitoring of the groundwater level and quality will be undertaken to verify the predicted impacts on the groundwater	Groundwater monitoring is undertaken downstream of all dirty water systems (such as the Landfill Site, Plant, and Paste Disposal Facility). The assessment of the groundwater model has been undertaken by Golder Associates Africa (Pty) Ltd (Golder). The report indicates that the Mine does not have an impact on groundwater quality: A mass transport simulation was undertaken in order to evaluate the pathway of seepage from existing and proposed infrastructure. It was demonstrated that the mass plumes associated with Licensed infrastructure are not expected to impact receptors proximal to Khumani Mine during life of mine. Similarly, it was shown that the additional infrastructure will not result in impact on surrounding receptors during the operational phase. The 2016 GPT report stated that most of the background water qualities exceed the water resource quality objectives prior to any mining activity taking place.	GPT Critical Evaluation of Groundwater Quality Motoring Report, February 2016. Monitoring Results up until June 2019.	3	3	The WUL Amendment Application should request the amendment of water quality results. The water monitoring network should be improved on based on the GPT report.	SHEQ Department



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		<p>However, the background water qualities comply with the lower aesthetic of the SANS 241-7:2011 standard. The water resource quality objectives contained within the WUL of 2013 is of concern especially if remediation and clean-up levels are to be determined on closure. Consultation with DWS will be required to determine more realistic water quality limits.</p> <p>The water qualities required in this licence are not realistic for dirty water being disposed of into waste facilities. The DWS representative, Lorraine Nobela, indicated during 2013 already, that she would check with the reserve office and see why such stringent quality requirements were included into the licence and request an amendment thereto.</p> <p>Water quality in the boreholes have been constant over time, what is interesting in the records is the fact that since 2015, almost all parameters exceeded the WUL limits (this is pre-mining).</p> <p>A critical evaluation of groundwater quality was undertaken by GPT during February 2016. The outcomes of the study were that:</p> <ul style="list-style-type: none"> * All boreholes should be monitored on a quarterly basis; * The expansion of the monitoring network should be considered; * A groundwater risk assessment should be undertaken (currently being conducted by Golder); and * Most of the background water qualities exceed the water resource quality objectives prior to any mining activity taking place. <p>Just considering the above mentioned report, Total Dissolved Solids (TDS), Magnesium (Mg), Sodium (Na), Potassium (K), Chloride (Cl), Nitrate (NO₃), Fluoride (F) and Manganese (Mn) all exceeded the WUL 2013 limits during the 2007 baseline condition already. This is in line with what is currently observed in the dirty water systems.</p> <p>Another important consideration is the stringent limits changed since the 2008 WUL. For Alkalinity, Calcium (Ca), Cl, F, Mg, NO₃, K, Na and Sulphate (SO₄) limits have been reduced in the 2013 WUL. When considering the original limits, based on the GPT report, the Mine is mainly within</p>					

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		the allowable limits, except for Alkalinity and NO ₃ in certain events.					
	Should an emergency arise, excess dewatered water will be contained in the return water dams and additional storage tanks on site. This is however not envisaged due to the shortage of water on site and the need for water by the mining operations.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No recommendations.	-
	Boreholes will be monitored for groundwater level and quality to assess the impacts on the groundwater. The monitoring criteria are supplied in Water Use Application	<p>The water qualities required in this licence are not realistic for dirty water being disposed of into waste facilities. The DWS representative, Lorraine Nobela, indicated during 2013 already, that she would check with the reserve office and see why such stringent quality requirements were included into the licence and request an amendment thereto.</p> <p>Boreholes PBW01, PBW04, BKM 3D, Markram and PBE01 has been monitored, since January 2015. Water quality in the boreholes have been constant over time. What is interesting in the records is the fact that even pre-mining condition all parameters exceeded the WUL limits.</p> <p>A critical evaluation of groundwater quality was undertaken by GPT during February 2016. The outcomes of the study were that:</p> <ul style="list-style-type: none"> * All boreholes should be monitored on a quarterly bases; The expansion of the monitoring network should be considered; * A groundwater risk assessment should be undertaken (currently being conducted by Golder); and * Most of the background water qualities exceed the water resource quality objectives prior to any mining activity taking place. It further stated that the background water quality complies with the lower aesthetic of the SANS 241:7:2011. The specialist stated that the Mine should consult with the DWS to determine realistic water quality limits, as the remediation and clean up levels which will be required considering the unrealistic WUL requirements will not be feasible. <p>Just considering the above mentioned report, TDS, Mg, Na, K, Cl, NO₃, F and Mn all exceeded the WUL 2013 limits during the 2007 baseline condition already. This is in line with what is currently observed in the dirty water systems.</p>	<p>GPT Critical Evaluation of Groundwater Quality Motoring Report, February 2016.</p> <p>September 2017 monitoring report.</p> <p>Golder Numerical Model, 2019</p>	0	3	<p>The WUL Amendment Application should request the amendment of water quality results.</p> <p>The water monitoring network should be improved on based on the findings of the GPT report.</p>	SHEQ Department



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		<p>Another important consideration is the stringent limits changed since the 2008 WUL. For Alkalinity, Ca, Cl, F, Mg, NO₃, K, Na and SO₄ limits have been reduced in the 2013 WUL. When considering the original limits, based on the GPT report, the Mine is mainly within the allowable limits, with the exception of Alkalinity and NO₃ in certain events.</p> <p>Groundwater monitoring is undertaken downstream of all dirty water systems (such as the Landfill Site, Plant and Paste Disposal Facility). The assessment of the groundwater model has been undertaken by Golder. The report indicates that the Mine does not have an impact on groundwater quality: A mass transport simulation was undertaken in order to evaluate the pathway of seepage from existing a proposed infrastructure. It was demonstrated that the mass plumes associated with Licensed infrastructure are not expected to impact receptors proximal to Khumani Mine during life of mine. Similarly, it was shown that the additional infrastructure will not result in impact on surrounding receptors during the operational phase.</p> <p>The 2016 GPT report stated that most of the background water qualities exceed the water resource quality objectives prior to any mining activity taking place.</p>					
Dewatering & Recharge	Should water be dewatered from the opencast pits the water will be used by the mine in place of borehole or Vaal Gamagara Water.	The Licence Holder is aware of this condition. No dewatering is currently required.	Site observations.	T/N	T/N	No recommendations.	-
	The in-pit water table will be monitored in order to verify the predicted rate of dewatering towards closure and the recovery rate after closure. The monitoring results will be used as a design parameter for the closure management measures. It therefore provides a perfect opportunity to obtain measured values against the current predictions.	The Licence Holder is aware of this condition. No in pit water is currently experienced.	Site observations.	T/N	T/N	No recommendations.	-
	Should it be indicated through monitoring and investigation by a suitably qualified person that any legitimate groundwater users are impacted upon in terms of quantity or quality of borehole water, alternative	The Licence Holder is aware of this condition. At the present time the mine is not undertaking dewatering activities.	Site observations.	Dup	Dup	No recommendations.	-



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	water sources will be made available to such users by the mine						
	Boreholes will be monitored for groundwater level and quality to assess the impacts on the groundwater. Groundwater monitoring in all the monitoring boreholes will be conducted on a quarterly basis to ensure a high frequency and spatial distribution of data. The results of the water quality monitoring will be used to verify the rate of movement of the groundwater pollution plume. The numerical model will be calibrated using such data and different management and rehabilitation options will be evaluated.	<p>No dewatering has taken place as of yet; it is expected that dewatering for safe mining conditions will only commence during 2024.</p> <p>Groundwater monitoring is undertaken downstream of all dirty water systems (such as the Landfill Site, Plant and Paste Disposal Facility). The assessment of the groundwater model has been undertaken by Golder. The report indicates that the Mine does not have an impact on groundwater quality: A mass transport simulation was undertaken in order to evaluate the pathway of seepage from existing a proposed infrastructure. It was demonstrated that the mass plumes associated with Licensed infrastructure are not expected to impact receptors proximal to Khumani Mine during life of mine. Similarly, it was shown that the additional infrastructure will not result in impact on surrounding receptors during the operational phase.</p> <p>The 2016 GPT report stated that most of the background water qualities exceed the water resource quality objectives prior to any mining activity taking place. However, the background water qualities comply with the lower aesthetic of the SANS 241:2011 standard. The water resource quality objectives contained within the WUL of 2013 is of concern especially if remediation and clean-up levels are to be determined on closure. Consultation with DWS will be required to determine more realistic water quality limits.</p> <p>Quarterly monitoring is being undertaken.</p>	<p>GPT Critical Evaluation of Groundwater Quality Motoring Report, February 2016.</p> <p>Golder Numerical Model, 2019</p>	T/N	T/N	A Section 21(j) water use is in place for dewatering for safe mining conditions at both King and Bruce - this use will likely commence in 2024 and must be linked to an actual use, such as a Section 21(a).	SHEQ Department
Air Quality (PM10 concentrations impacts and dust fallout during construction activities)	Control techniques for fugitive dust sources generally involve watering, chemical stabilisation, and the reduction of surface wind speed though the use of windbreaks and source enclosures.	<p>PM10 monitoring stations are present on site.</p> <p>During the site audit, an indication of potential concerns in terms of dust dispersion based on visual observations were noted, which is regarded a non-compliance in terms of the interpretation of this condition. Most roads are treated with a dust suppressant, other roads are wet suppressed. Blasting and material transfer present short term dust pollution, especially during cloudy conditions.</p> <p>Detailed dust monitoring protocol is in place. Gondwana Environmental Solutions (Pty) Ltd (Gondwana), a South African National Accreditation System (SANAS) Accredited</p>	<p>Gondwana Dust Monitoring Reports, January 2018-December 2018.</p> <p>Soil Analysis Report, March 2018.</p>	3	3	It is recommended that the dust monitoring results are presented in graphs to present visual trends.	SHEQ Department



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		<p>Testing Laboratory was in the past responsible for dust monitoring; currently the Mine is undertaking dust monitoring internally. According to the National Dust Regulations No. R. 827 of 1 November 2013, the permitted frequency of exceeding dust fall rate in non-residential areas should not exceed two within a year, not sequential months. The data provided by the Mine indicate that the majority of sites are in line with the standards, with the exception of BKM17, which is located in the Plant area.</p> <p>When there is exceedance in terms of the regulatory standards, this is reported onto IsoMetrix.</p>					
	Debris handling: Wind speed reduction through sheltering and wet suppression.	The areas where waste and debris are handled (salvage yards) are fenced off.	Site observations.	3	3	No recommendation.	-
	Truck transport and road: Wet suppression or chemical stabilization of unpaved roads.	Dust suppression and a dust suppressant are implemented on site.	Site observations.	3	3	No recommendation.	-
	Dust entrainment: Reduction of unnecessary traffic and strict speed control; require haul trucks to be covered; and wet material being hauled.	Generally, the speed limit is well maintained on site.	Site observations.	3	3	No recommendations.	-
	Materials storage, handling and transfer operations: Wet suppression.	A detailed dust monitoring protocol is in place. During the 2018 external Environmental Audit Report, extensive dust was observed along the Primary Crusher Stockpile at King. The interviews on site stated that the abatement systems impact on the process, causing the clogging of the systems and then additional dust suppression is not implemented. No impacts were observed during the three days on site.	Site observations.	3	3	No recommendations.	-
	Earthmoving and dozing operations: Wet suppression.	<p>A detailed dust monitoring protocol is in place. Gondwana, a SANAS Accredited Testing Laboratory was in the past responsible for dust monitoring; currently the Mine is undertaking dust monitoring internally. According to the National Dust Regulations No. R. 827 of 1 November 2013 the permitted frequency of exceeding dust fall rate in non-residential areas should not exceed two within a year, not sequential months. The data provided by the Mine indicate that most sites are in line with the standards, except for BKM17, which is located in the Plant area.</p> <p>Wet suppression is undertaken on site, as well as the suppression of dust by a E-Cat Dust suppressant.</p>	<p>Gondwana Dust Monitoring Reports, January 2018-December 2018.</p> <p>Site observations.</p>	3	3	No recommendations.	-
	General construction: Wind speed reduction, wet suppression & early paving of permanent roads; and	No construction activities are taking place.	Site observations.	NLR	NLR	No recommendations.	SHEQ Department



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	phasing of earthmoving activities to reduce source size.						
	Open areas (wind-blown emissions): Early re-vegetation, compaction and stabilization of disturbed soil; and reduction of frequency of disturbance.	No areas of concern were observed in terms of windblown emissions. The open areas on site is based on active mining operations. Ongoing rehabilitation is being undertaken.	Site observations.	3	3	No recommendations.	SHEQ Department
	Chemical dust suppression systems will be implemented at the primary crushing and screening plants,	Compliant, E-Cat dust suppressant is used.	Site observations.	3	3	No recommendations.	-
	Should roads be left unserviced an average watering rate of 113 kilolitres per hour would be required to achieve a control efficiency of 75 percent, with a rate of 188 kilolitres per hour being needed to ensure 85 percent control efficiency	Dust suppression and a dust suppressant are implemented on site.	Site observations.	3	3	Dust abatements systems must always be implemented.	SHEQ Department
	Dust extraction systems comprising of wet scrubbers will be installed at the secondary and tertiary crushing and screening plants.	Compliant.	Site observations.	3	3	No recommendations.	-
	Self-sustaining vegetation will be established to cover all exposed areas (i.e. stockpiles, rock dumps),	Compliant, vegetation through self-succession has been established successfully on rehabilitated areas. Slopes of the Discard Dump and Low-Grade ROM Stockpiles are still steep and in operation.	Site observations.	2	3	The slopes where final footprints have been reached should be designed or reshaped to allow for the final design requirements.	SHEQ Department
	All haul roads will be treated with Dust-a-Side (measures aimed at binding the surface material),	A binding product, not specifically Dust-a-Side is utilised. This treatment was however not observed at King.	Site observations.	TBA	TBA	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. It is not practically possible to make a commitment in the EMP relating to a specific supplier or product. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020.	SHEQ Department
	Permanent improvements in travel surfaces, such as the paving of a road, results in continuous control efficiencies. All access roads and roads in and around the plant will be paved.	Compliant. Access roads are tarred.	Site observations.	3	3	No recommendations.	-
	Liquid spray systems will be implemented at conveyor transfer points. Control efficiencies from the application of liquid spray systems at conveyor transfer points have <i>in practice</i> been reported to be in the range of 42% to 75%.	Compliant.	Site observations.	3	3	No recommendations.	-



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	Assmang will commit to air quality management planning throughout the various operations of the mine. It is recommended that an Air Pollution Control System (APCS) be developed for BKM Mine to reduce and control all main contributing sources.	Compliant. A detailed air quality monitoring programme is in place on site. During 2014 a Gap Study was undertaken to confirm the methodology followed and the parameters analysed.	2014 Gap Analysis. Gondwana Dust Monitoring Reports, January 2018-December 2018.	3	3	No recommendations.	-
	The walls of the discard stockpiles, topsoil piles, overburden dump, and paste disposal facility will be vegetated or covered up to 1 m from the top throughout the life of mine. The vegetation cover should be such to ensure at least 80% control efficiency for the walls. This should be an on-going process. As an alternative option (due to the dry nature of the region), waste rock could be used to form the side slopes of the paste disposal facility. This would result in the surface of this facility to be below the top of the side walls during operations which may result in a reduction in wind entrainment from the surfaces. In addition, waste rock can also be used to cover the slopes of the large overburden dump and topsoil piles. This is based on the waste rock dump being the lowest source of wind-blown dust from all the sources included.	Vegetation on the active stockpiles have not been initiated. Currently the Mine has drafted designs for the correct slope of the facilities. It should be noted that the 2009 Barrier Pillar EMP replaced the requirement for vegetation and recommended self-succession as the first part of rehabilitation.	Site observations.	TBA	TBA	It is recommended that this condition be amended in line with Regulation 34 and based on updated Air Quality Studies and Design Drawings. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020.	SHEQ Department
Dust Management Plan	It is recommended that control efficiencies of between 80% and 90% be achieved at all tipping points, and crushing and screening facilities to ensure a significant reduction in off-site impacts.	The dust monitoring reports indicate no incidents of exceedances at the perimeter monitoring points.	Site observations. Gondwana Dust Monitoring Reports, January 2018-December 2018.	3	3	No recommendations.	-
	Dust fall in the immediate vicinity of mining perimeter must be less than 1 200 mg/m ² /day.	Compliant	Dust Fallout Spreadsheet 2019.	1	3	A detailed dust monitoring protocol is in place. Dust abatement systems must always be implemented within the King area as well.	SHEQ Department
	The absence of visible dust plume at all tipping points and outside the primary crusher during crushing operations would be the best indicator of effective control equipment in place. In addition, the dust fall in the immediate	The dust monitoring reports indicate no incidents of exceedances at the perimeter monitoring points.	Site observations. Gondwana Dust Monitoring Reports, January 2018-December 2018.	3	3	No recommendations.	-



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	vicinity of various sources should be less than 1 200 mg/m ² /day.						
	Dust fall near sensitive receptors (i.e. Dingleton, Kathu and Mooihoek, Vlakwater and Weltevreden) should not exceed 600 mg/m ² /day.	The boundary dust monitoring points were compliant.	Dust Fallout Spreadsheet 2019.	3	3	No recommendations.	-
	Periodic inspections and external audits are essential for progress measurement, evaluation and reporting purposes. According to the Guidelines of the Chamber of Mines (1996), every decommissioned residue deposit should be inspected at yearly intervals by a suitably qualified person and any alteration or deterioration of conditions at the deposit reported to the responsible authority	The Licence Holder is aware of this condition. No decommissioned residue stockpile is currently present on site.	Site observations.	T/N	T/N	No recommendations.	-
	It is recommended that site inspections and progress reporting be undertaken at regular intervals (at least quarterly) during operations, with annual environmental audits being conducted. Annual environmental audits forms part of an APCS and should be initiated at BKM Mine. Results from site inspections and off-site monitoring efforts should be combined to determine progress against source- and receptor-based performance indicators. Progress should be reported to all interested and affected parties, including authorities and persons affected by pollution.	The Mine annually reports all dust monitoring on the South African National Atmospheric Emissions Inventory System (NAIES). Regular meetings with stakeholders are also held in which concerns are discussed. Regular inspections are undertaken by the mine (internal inspections) and these are undertaken monthly.	Site observations. Interested and Affected Parties (I&AP) Meetings July 2018 and February 2019.	3	3	No recommendations.	-
	EMPs should stipulate specific intervals at which forums will be held, and provide information on how people will be notified of such meetings. For operations for which unrehabilitated or party rehabilitated tailings impoundments (in this case paste disposal facility) are located in proximity (within 3 km) from residential areas, it is recommended that such meetings be scheduled to be held at least on a quarterly basis. This, for example would be applicable to	The Tshiping Water Users Association was formally established on 22 February 2008. Khumani participates actively in this Association and manage consultation through the biannual farmers meetings.	Minutes of meetings are available on site. I&AP Meetings July 2018 and February 2019.	3	3	No recommendations. Licence Holder to continue in actively participating in this Association.	SHEQ Department



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	Dingleton, Kathu and the farming residents						
	The budget should provide a clear indication of the capital and annual maintenance costs associated with dust control measures and dust monitoring plans. It may be necessary to make assumptions about the duration of aftercare prior to obtaining closure. This assumption must be made explicit so that the financial plan can be assessed within this framework. Costs related to inspections, audits, environmental reporting and I&AP liaison should also be indicated where applicable. Provision should also be made for capital and running costs associated with dust control contingency measures and for security measures.	Dust monitoring is being undertaken monthly as part of the Mine's operational costs.	Site observations.	3	3	No recommendations.	-
Noise (Increased noise levels during operation)	All workers will have access to and wear noise reduction Personal Protection Equipment (PPE) appropriate to their working conditions.	Compliant.	Site observations.	3	3	No recommendations.	-
	Construction activities will be reduced during the night-time.	No construction activities are taking place.	Site observations.	NLR	NLR	No recommendations.	-
	All the equipment, but especially the diesel-powered mining equipment, will be well maintained.	No areas of concern were observed around the linear infrastructure during the site visit. During the site visit the workshop personnel at the King Workshop explained that all vehicles must report to the workshop at least weekly for inspection.	Site observations.	3	3	No recommendations.	-
	Ensure all vehicle noise emissions are within industry norms.	Health and Safety monitoring is being undertaken on site continuously. If vehicles are found to be outside of the standards as adhered to in the workshops, these are placed in specific management programmes.	Site observations.	3	3	No recommendations.	-
	The maintenance schedule will include the checking of exhaust and intake silencers. Any change in the noise emissions characteristics of equipment must serve as an indicator for its immediate withdrawal from service and placement on the maintenance schedule.	Pre-start checklists are being implemented for all mine vehicles. In addition to this, Health and Safety monitoring is being undertaken on site continuously.	Site observations.	3	3	No recommendations.	-
	All blasting procedures will be limited to the daytime.	Compliant.	Site observations.	3	3	No recommendations.	-



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	Noise monitoring will be undertaken by the mine throughout the life of the mining activities to ensure that noise levels comply with Safety and Health Standards.	Health and Safety monitoring is being undertaken on site continuously. This also forms part of the Environmental Control Officer's checklist.	Site observations.	3	3	No recommendations.	-
Sites of Archaeological and Cultural Interest (Loss of information of interest)	All grave sites / cemeteries situated within the mine area will be fenced off in order to ensure the protection of these sites.	Compliant.	Site observations.	3	3	No recommendations.	-
	Provision will be made for families to gain access to the graves under controlled supervision.	Compliant.	Site observations.	3	3	No recommendations.	-
	Subsurface traces and features may occur. In the event that any major feature is encountered, for example, a burial or a cache of ostrich eggshell flasks, then work should be halted, and a professional archaeologist consulted in order to assess the find and make recommendations for mitigation, if necessary. All archaeological traces are protected by legislation. Should it be required that features are removed, a permit from SAHRA will be required.	The Licence Holder is aware of this condition. This also forms part of the Environmental Control Officer's checklist.	Site observations.	T/N	T/N	No recommendations.	-
	Immediately upon the identification or unearthing of a grave, all work, construction, or excavation within a radius of 3 m of the gravesite shall cease, to avoid desecration of the grave or any further damage.	The Licence Holder is aware of this condition.	-	T/N	T/N	No recommendations.	-
	The person that identifies the grave will ensure the following:						
	A person is appointed to watch over the grave until a security guard has arrived.	The Licence Holder is aware of this condition.	-	T/N	T/N	No recommendations.	-
	The Site Manager or his representative and Human Resources Manager are informed of the discovery of the grave immediately.						
	The Site Manger or his representative will ensure that:						
	The grave shall be clearly marked with hazard tape, screening off a radius of 3 m around the site of the grave.	The Licence Holder is aware of this condition.	-	T/N	T/N	No recommendations.	-



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	The security company are instructed to make available a security guard to watch over the grave until attended to by the undertaker.						
	Photographs and co-ordinates are taken of the grave and surroundings.						
	A local undertaker is contacted to attend the grave within a 24-hour period.						
	The local municipal health inspector will be informed should the grave(s) be exhumed.						
	The family of the deceased will be contacted, or an advertisement will be placed in the local newspaper.						
Visual Aspects (Visual intrusion/ Visibility/ Visual exposure/ Sensitivity/ Impact on sense of place)	Roads will be treated or surfaced in order to reduce the impact of dust on the aesthetics of the surrounding area.	Compliant.	Site observations.	3	3	No recommendations.	-
	The minimum amount of existing vegetation and topsoil will be removed from construction areas.	Compliant. Site clearance only takes place where required. This is also linked to specific tree removal permits.	Site observations.	3	3	No recommendations.	-
	Ensure, wherever possible, that all existing natural vegetation is retained and incorporated into the site design.	Compliant. Site clearance only takes place where required. This is also linked to specific tree removal permits.	Site observations.	3	3	No recommendations.	-
	Eradication of vegetation will be done in a "natural manner", avoiding harsh straight lines.	Compliant. Site clearance only takes place where required. This is also linked to specific tree removal permits.	Site observations.	3	3	No recommendations.	-
	Buildings and Structures that are required to be built from steel or concrete will be painted a dark natural tone fitting with the surrounding environment	Compliant.	Site observations.	3	3	No recommendations.	-
	Roofs of tall structures will be painted a 'dirty' grey	Compliant.	Site observations.	3	3	No recommendations.	-
	To reduce the amount of glare, external surfaces of buildings and other structures will be articulated or textured to increase the interplay of light and shade	Compliant.	Site observations.	3	3	No recommendations.	-
	Natural vegetation will be retained wherever possible and any removal of vegetation should be conducted as	Compliant. Site clearance only takes place where required. This is also linked to specific tree removal permits.	Site observations.	3	3	No recommendations.	-



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	described in section 5.1.6 of the EIA/EMPR.						
	Vegetation clearance will be done in phases (i.e. only in those areas that require clearance at a specific point in time for construction activities to take place).	Compliant. Site clearance only takes place where required. This is also linked to specific tree removal permits.	Site observations.	3	3	No recommendations.	-
	During construction, vegetation is removed during the soil stripping process. This will be limited to the development of the box cuts, access roads, internal roads, stockpile areas and other infrastructure.	No construction activities are taking place.	Site observations.	NLR	NLR	No recommendations.	-
	Species like the <i>Aloe striata</i> , <i>Adenia repanda</i> , <i>Antimima lawsoni</i> , and <i>Euphorbia planiceps</i> should not be affected by the proposed infrastructure and will be relocated.	Tree Removal Permits were obtained for site clearance activities.	Most recent permit: Tree Removal Permit 0012/2017.	3	3	No recommendations.	-
	An ecological approach to rehabilitation and screening measures, as opposed to a horticultural approach to landscaping will be adopted. For example, communities of indigenous plants enhance biodiversity and blend well with existing vegetation.	The Licence Holder is aware of this condition.	-	T/N	T/N	No recommendations.	-
	Clubs of trees and shrubs along the eastern boundary of the plant site and along the southern edge of the road near the paste disposal facility will be used to partially screen nearby views of structures and the dam wall if carefully planned and positioned.	The site walls of the Paste Disposal Facility are successfully vegetated. Where required trees have been left intact around the facility.	Site observations.	3	3	No recommendations.	SHEQ Department
	During construction and operational phases of the mine, haulage roads will be treated with Dust-a-Side or a similar product to reduce water usage and dust creation.	Compliant. A binding product, not specifically Dust-a-Side is utilised. This treatment was however not observed at King.	Site observations.	3	3	No recommendations.	SHEQ Department
	Where a paved surface is required dark paving materials that complement the natural brown colours and textures of the soil and rock in the area will be utilized	Compliant.	Site observations.	3	3	No recommendations.	-
	Light pollution will be seriously and carefully considered and kept to a minimum wherever possible as light at night travels great distances.	Compliant.	Site observations.	3	3	No recommendations.	-



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	Security flood lighting and operational lighting will only be used where absolutely necessary and carefully directed, preferably away from sensitive viewing areas, i.e. the direction of the N14. Wherever possible lights should be directed downwards so as to avoid illuminating the sky.	No areas of concern were observed around the linear infrastructure during the site visit.	Site observations.	3	3	No recommendations.	-
	High pole top security lighting will be avoided along the periphery of the site and use only lights that are activated on illegal entry to the site.	No areas of concern were observed around the linear infrastructure during the site visit.	Site observations.	3	3	No recommendations.	-
	Final shaping and dumping will be implemented such that the sides of the dumps are articulated in a fashion that create areas of light and shadow interplay.	The dumps are not currently designed with closure in mind. These facilities are characterised by steep slopes. Closure plans have however been developed which considers the sloping and self-succession of these facilities.	Site observations.	T/N	T/N	The rehabilitation options for the stockpiles should be investigated. It is assumed, that based on the current engineering opinions in terms of the financial provision, that the footprints of the stockpiles will have to exceed the approved areas to ensure that the required slopes are met. This may trigger additional Waste Licensing considering the current NEMWA requirements.	SHEQ & Mining Department
	A combination of indigenous trees and shrubs will be planted along the southern side of the N14 as a 'buffer' and to partially screen views to the dam.	Compliant. Indigenous trees have been successfully planted in along the N14/ Khumani boundary in 2014.	Site observations.	3	3	Ongoing maintenance and monitoring of the establishment of these species should be undertaken.	SHEQ Department
	Final shaping will be implemented such that the final profile of the rehabilitated overburden dumps is formed to emulate natural contours of the area i.e. a flat-topped profile is not desirable – rather a profile that emulates the nearby hills is proposed.	The facilities are still within the operational phase. It should be noted that the KM02 WRD has encroached beyond its footprint area towards the eastern portion.	Site observations.	T/N	T/N	The areas where mine residue is no longer deposited should be rehabilitated. The slopes where final footprints have been reached should be designed or reshaped to allow for the final design requirements	SHEQ & Mining Department
Regional Socio-Economic Structure (Introducing different demographic profiles)	Assmang Group has already appointed women in the hard-core business production units and has also taken a policy decision to increase the focus on women bursary holders and learnership intakes. These practices will be continued at the new BKM Mine.	Compliant. The mine is operating under a Social and Labour Plan, which is audited annually and assessed by the DMR.	Site observations.	3	3	No recommendations.	-



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	Assmang Group has adopted a policy focussing on achieving the 40 % HDSA participation in management. The Equity Manager at BKM Mine will be the appointed watchdog in the recruitment process to optimise HDSA appointments in vacancies, and to ensure the optimal utilization of the principles of suitably qualified, recognition of prior learning etc., in recruitment.	Compliant. The mine is operating under a Social and Labour Plan, which is audited annually and assessed by the DMR.	Site observations.	3	3	No recommendations.	-
	Assmang Group will continue to rely on its long-term internal accelerated development process and pool as well as its internal affirmative action orientated bursary and learnership systems to achieve Mining Charter targets.	Compliant. The mine is operating under a Social and Labour Plan, which is audited annually and assessed by the DMR.	Site observations.	3	3	No recommendations.	-
	The mine will establish a working group between the neighbouring mines (Sishen and Burk Mine) to ensure that no mining interruptions occur due to the development of the new mine and to limit the potential of cumulative impacts.	Currently Sishen Mine and Khumani Mine is mining the barrier pillar between the two operations mutually. No impacts as a result of the mines' disturbing activities have occurred to date.	Site observations.	3	3	The Licence Holder shall take note of this condition and must ensure to actively partake in the sharing of information where required for the purposes of the Reserve Determination.	SHEQ & HR Department
Regional Socio-Economic Structure (Population increase)	Assmang participated in the development of the Integrated Development Plan (IDP) for Tsantsabane municipality. Since the planned BKM mine falls on the boundary between the Tsantsabane and Gamagara magisterial areas, it is anticipated that Assmang will extend its involvement to the development of the IDP for Gamagara Local Municipality.	Compliant. The Mine operates Social Economic Development (SED) projects in Olifantshoek as well as in the Kathu area.	Site observations.	3	3	No recommendations.	-
	The BKM Mine will be in continuous contact with the local authorities to discuss infrastructure and socio-economic restrictions, and how the mine can contribute to limiting these impacts.	This conditions forms part of the ongoing Social and Labour Plan which is updated and audited regularly outside of the ambits of the EMP.	Site observations.	3	3	For the purposes of future audits, it is recommended that a list of SED projects is available on site.	SHEQ & HR Department
Regional Socio-Economic Structure (Social investment activities)	Benefits to communities surround the Khumani site will flow from the mine's social investment activities. Assmang's current social investment programme	This conditions forms part of the ongoing Social and Labour Plan which is updated and audited regularly outside of the ambits of the EMP.	Site observations.	3	3	No recommendations.	-



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	for communities surrounding the Mine places particular emphasis on the provision of education, training and skills development opportunities. Assmang has undertaken that this trend will continue at the BKM Project.	The Mine operates SED projects in Olifantshoek as well as in the Kathu area. The mine is operating under a Social and Labour Plan, which is audited annually and assessed by the DMR.					
	As is the case with Beeshoek, a wide variety of training and skills development systems will be made available to all BKM employees. These training materials serve to build flexible, portable skills profiles, and reflect the true lifelong learning opportunities available at Assmang to employees, contractor employees and the wider surrounding communities	Compliant. The Mine has an approved Social and Labour Plan in Place, which addresses specific skills development requirements and plans with associated targets.	Site observations.	3	3	Ongoing implementation of this plan must be implemented.	SHEQ & HR Department
	The Assmang Group currently spends one percent of after-tax profit on local Social Investment projects, aligned with the local IDP, on an annual basis. This practice will be continued at the new Khumani Mine.	Compliant. The mine is operating under a Social and Labour Plan, which is audited annually and assessed by the DMR.	Site observations.	3	3	Ongoing implementation of this plan must be implemented.	SHEQ & HR Department
Regional Socio-Economic Structure (Impacts on adjacent properties)	The proposed housing arrangements described in Section 3.9.10 indicate that no unsustainable mine-owned mine village will be established at BKM, as was traditionally the norm in the mining industry. Housing for BKM will be privately owned to empower employees, and will be integrated and aligned with a long-term sustainable municipal system.	Compliant.	Site observations.	3	3	No recommendations.	-
	In order to promote social sustainability and acceptability of housing arrangements, unions are also integrally involved in housing arrangements.	Compliant.	Site observations.	3	3	No recommendations.	-
	The mine will fence off all mining areas and will undertake regular inspections to ensure that the fencing is in place and in good condition.	Compliant.	Site observations.	3	3	No recommendations.	-
	Strict security measures will be in place at the BKM Mine.	Compliant. Strict control is enforced by the Mine and the security access points.	Site observations.	3	3	No recommendation.	-
	An open channel of communication will be established through the Future	The Tshiping Water Users Association was formally established on 22 February 2008. Khumani further	Minutes of Farmers meetings are available on site.	3	3	No recommendations. Licence Holder to continue in actively participating in this Association.	SHEQ Department



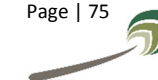
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	Forum, which will enable surrounding landowners to raise concerns.	participates actively in this Association and manage consultation through the farmers meetings (future forum).					
Regional Socio-Economic Structure (Remittances and transfers)	The Assmang Group follows a policy of local recruitment; only a very small percentage of its labour force originates from other parts of the country. This policy will be strictly adhered to by the Khumani Mine.	Compliant. The mine is operating under a Social and Labour Plan, which is audited annually and assessed by the DMR.	Site observations.	3	3	Ongoing implementation of this plan must be implemented.	SHEQ & HR Department
Regional Socio-Economic Structure (Transportation of employees)	The Khumani Mine will establish a safe transportation system to enable employees to arrive at work. A bussing service will be available, which will collect and return the employees to designated areas at specific times, depending on the various shifts.	No transportation is provided to employees. Travel allowances are offered. When the need arises, travelling will be provided.	Site observations.	3	3	This condition should be amended in future EMP Updates.	SHEQ Department
Regional Socio-Economic Structure (Impact on roads and railways)	The mine will be in continuous consultation with the relevant parties.	The Tshiping Water Users Association was formally established on 22 February 2008. Khumani participates actively in this Association and manage consultation through the farmers meetings.	Minutes of meetings are available on site.	3	3	No recommendations. Licence Holder to continue in actively participating in this Association.	SHEQ Department
	The mine will arrange with the relevant parties to remove commercial/advertising signage, where necessary, in order to improve sight distances at the entrances of the mine from the existing roads where necessary.	No areas of concern were observed around the linear infrastructure during the site visit.	Site observations.	3	3	No recommendations.	-
	Improved signage to reduce speeds and warning of large trucks crossing, including flasher lights should be implemented should the crossing be necessary on exception.	Compliant.	Site observations.	3	3	No recommendations.	-
	Illumination or the use of reflectors on both the horse and trailer of all the mine haulage trucks is required on and off site.	Compliant.	Site observations.	3	3	No recommendations.	-
	Vehicles will keep to a 60 km speed limit to minimize wear and ensure safety within the mining area.	Compliant. Speed is mostly allowed between 20 and 40km/hr within the mining area past the security gates.	Site observations.	3	3	No recommendations.	-
	The N14 road at the King access will be broadened according to the Standard Specifications of South African National Roads Agency Limited (SANRAL).	Compliant.	Site observations.	3	3	No recommendations.	-
	The mine will comply with all technical standards according to the Provincial Roads Authority.	Compliant.	Site observations.	3	3	No recommendations.	-



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	Erecting adequate warning/safety signage (in accordance with Provincial Roads standards) to warn motorists of the access i.e.:	Compliant	Site observations.	3	3	No recommendations	-
	T-junction ahead warning sign						
	Truck crossing warning sign incorporating flashing lights, in the event should this be necessary						
	Rumble strips to improve awareness for motorists approaching the intersection are recommended						
Crack Survey (Impact of blasting activities on the surrounding properties)	Prior to the commissioning of blasting activities at the BKM Mine, the technical blasting team of Sishen Mine, Burk Mine and the BKM Mine will assess the various blasting schedules in a working group. Schedules will be put in place to ensure that all blasting activities in the area are not taking place at once but spaced accordingly to limited the impact of blasting activities on the surrounding houses or that a blasting procedure be put in place to ensure the least impact should simultaneous blasting be required.	Compliant, a crack survey has been undertaken prior to the construction phase, ongoing vibration monitoring is undertaken in and around the site. A consultation process is being undertaken with the surrounding mine to coordinate blasting.	EMP, 2006	3	3	No recommendations.	-
	An exclusion zone of 500 m will be established around the blast area.	Compliant.	Site observations.	3	3	No recommendations.	-
	A signature trace analysis will be undertaken prior to the commencement of blasting operations, in order to examine the blasting procedure. It is recommended that the survey to be undertaken by a registered company (i.e. Sasol Nitro).	Compliant.	Site observations.	3	3	No recommendations.	-
	All blasting activities will be undertaken during the day (12h00 and 16h00) in order to eliminate the disturbance level associated with blasting activities.	Compliant.	Site observations.	3	3	No recommendations.	-
	The mine will establish an open channel of communication, in order to ensure that all issues and concerns are known and are addressed.	The Mine has a forum with a farmer representative (liaison). During a meeting held with the farmers on 23 November 2017, the farmers confirmed how well the communication system operates. These meetings are continuing with the last meeting held on 6 February 2019.	Farmers Meeting, 23 November 2017 and February 2019	3	3	No recommendations.	-
	The mine will implement a temporary testing model during the initial blasting phase. Should the results indicate it	Not audited retrospectively.	N/A	N/A	N/A	No recommendations.	-



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	necessary (vibrations above or on impact level), permanent monitoring stations will be implemented, in order to establish whether any potential impact could result due to blasting activities. The areas of most influence as identified by the temporary seismic monitoring stations will be equipped with permanent seismic monitoring stations.						
	Installation of electronic crack monitors will also be undertaken if it is requested by surrounding property owners. These monitors employ a single sensor that measures both weather-induced micrometre changes in crack width and those produced by habitation and ground motion-induced vibration.	Vibration studies are undertaken once a year to determine the impact of the mining operations on surrounding landowners. Vibration monitoring is also undertaken to determine the impact of blasting on the properties.	Vibration Study, August 2017 and 2018.	3	3	No recommendations.	-
	The blasters will be trained individuals who are licensed to use explosives and have the necessary knowledge about the safe handling of explosives.	Blast Analysis Africa cc is appointed as the blast management company. Limited information could be obtained regarding the company's profile and the website is under construction. What is available is that the company is a Close Corporation business incorporated in South Africa on June 27, 1997.	http://www.companies-southafrica.com/blast-analysis-africa-540j/	3	3	No recommendations.	-
	The mine will undertake monthly blasting monitoring in order to determine whether the blasting activities remain below acceptable levels (i.e. below the recommended 12 mm / s, which is approved by the DMR	The wave form analysis is measured at each blast cycle.	Site observations.	3	3	No recommendations.	-
	The blasting will conform to the requirements of the Mines and Works Act.	Compliant. No areas of complaint have been raised. This condition has only been assessed in terms of complaints considered and the fact that competent consultants are used in the undertaking of blasting (Sasol Nitro).	IsoMetrix.	3	3	No recommendations.	-
	Scheduled blasting times will be planned in advance and will be clearly indicated on the mining area. Blasting boards, at the plant gate, as well as at all access areas, will be updated at least 24 hours prior to the blast, displaying the time and date of the blast.	Compliant.	Site observations.	3	3	No recommendations.	-
	Surrounding property owners will be informed of the blasting procedures and schedules	All property owners within 500m from the blasting area is informed of blasting procedures.	Site observations.	2	3	It is recommended that the Mine submits a notification of blasting to all	SHEQ Department



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						parties on the registered farmers meeting list.	
	Employees and outside contractors etc. will be informed of the blasting procedures and the associated safety measures, during induction.	Compliant.	Induction undertaken by auditor.	3	3	No recommendations.	-
	Prior to blasting, all vehicles and machinery will be removed from the blast area and parked at a designated site, as determined by the responsible manager.	Compliant.	Site observations.	3	3	No recommendations.	-
	All possible access roads will be blocked by personnel with red flags.	Compliant.	Site observations.	3	3	No recommendations.	-
	Where access roads cannot be barricaded by means of booms or gates, a vehicle equipped with a red flag will barricade the road.	Compliant.	Site observations.	3	3	No recommendations.	-
	Guards will be instructed in, and be familiar with the blasting procedures and be competent to carry out responsibilities.	Compliant.	Site observations.	3	3	No recommendations.	-
	Warnings will be given prior to blasting.	Compliant.	Site observations.	3	3	No recommendations.	-
	Blast holes and the placement of the explosives will be undertaken in such a manner to reduce the possibility of air blasts and ground vibrations.	Blast Analysis Africa cc is appointed as the blast management company. Limited information could be obtained regarding the company's profile and the website is under construction. What is available is that the company is a Close Corporation business incorporated in South Africa on June 27, 1997. The wave form analysis is measured at each blast cycle.	Site observations.	3	3	No recommendations.	-
	Blasting will not be undertaken during cloudy days as far as practically possible, in order to reduce the potential for impacts on surrounding activities due to air blasts.	Compliant.	Site observations.	3	3	No recommendations.	-
Storage of explosives	In order to reduce the effects of the explosive's operations and products on the environment and prevent pollution, the following will be implemented:						
	Conduct audits and routine surveillance on the environmental management systems according to the internationally accepted standards.	The mine is ISO 14001 certified.	Site observations.	3	3	No recommendations.	-



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	Conduct environmental impact assessments when establishing new facilities and major modifications to existing facilities.	Compliant, the Mine is currently investigating the decommissioning of the existing silos, and the establishment of new facilities.	Site observations.	3	3	No recommendations.	-
	Adopt the best affordable technology to limit emissions and effluent.	The areas where the silos are present were in good order.	Site observations.	3	3	No recommendations.	-
	Practice the reduction, recovery and recycling of waste materials or the safe disposal thereof and the rehabilitation of disturbed land.	Compliant. In terms of the Explosives Magazine, outsourced companies are appointed to manage the explosives. Burning stations are present on site for the safe disposal of the explosives. In terms of hazardous waste, waste is removed by Oilkol, now, Interwaste or Olegra. Recycling of waste is undertaken within the Salvage Yard with the selling of scrap material.	Site observations.	3	3	No recommendations.	-
	Promote continual improvement in environmental health and safety systems, and as a minimum requirement conform to environmental, health and safety legislation.	Compliant. Work instructions are updated annually. EMPs and Environmental Authorisations/ WULs are audited annually. In addition to this, a training manual in terms of hygiene and environmental control is presented to staff.	Site observations.	3	3	No recommendations.	SHEQ Department
	Promote environmental awareness and responsibility amongst employees, customers, suppliers and the community at large.	<p>All employees and contractors are subjected to induction.</p> <p>Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the</p>	<p>Site observations.</p> <p>Contractor Management Procedure (Document Number: SP_155129</p>	3	3	It is recommended that the planning meetings for all areas must be used to present the outcomes of monitoring and present possible causes and actions.	SHEQ Department

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		Environmental Department is not yet involved but should form part of this to create environmental awareness.					
	Maintain transparent relations with employees, relevant authorities and the community.	Compliant. An IsoMetrix system is in place to record all incidents. Authorities are accommodated for site inspections and annual performance assessments are conducted externally and submitted to the Departments.	Site observations.	3	3	No recommendations.	-
	Explosives material will be handled according to ISO 14001 standards.	Compliant. In terms of the Explosives Magazine, outsourced companies are appointed to manage the explosives.	Site observations.	3	3	No recommendations.	-
	All employees will receive safety training. Everyone will be expected to stay abreast of all safety rules and procedures.	Compliant. In terms of the Explosives Magazine, outsourced companies are appointed to manage the explosives.	Site observations.	3	3	No recommendations.	-
	Emergency procedures will be in place. All incidents and abnormal conditions will be reported.	Compliant. The mine has a comprehensive emergency preparedness plan in place for fire, hydrocarbon spills, flooding, failures of facilities, etc..	Site observations.	3	3	No recommendations.	-
	Prescribed protective clothing and equipment will be provided.	Compliant. In terms of the Explosives Magazine, outsourced companies are appointed to manage the explosives. The mine provides Personal Protective Equipment (PPE) to all employees.	Site observations.	3	3	No recommendations.	-
	In order to eliminate contamination due to old blasting products and spills, all waste will be blasted as part of the blasting activities.	Compliant. In terms of the Explosives Magazine, outsourced companies are appointed to manage the explosives. Burn areas are also provided to minimise risk and contamination.	Site observations.	3	3	No recommendations.	-
	Oils will be brought back to site and will be disposed of at a hazardous waste site by a certified waste disposal company.	<p>In terms of oil removal:</p> <ul style="list-style-type: none"> * PPC Lime Acres, is a member of the National Oil Recycling Association of South Africa (NORA-SA) (expired 31 August 2019); * PPC Lime Acres has an Atmospheric Emissions Licence (AEL) in place, Ref: 23/4/2/58. allowing the facility to use used oil as a partial replacement for coal. * Olegra Oil (Pty) Ltd (Olegra) responsible for used oil removal is also a member of NORA-SA with a membership that has expired on 31 August 2019. * Transportation of dangerous goods registrations are available for the vehicles used by Olegra. These are valid until 19 June 2020. * Oily rags and greases are removed by EnviroServ, the registration certificate as a hazardous waste transporter available in the file expired on 13 July 2019. The Mine has however replaced this contract with the services of Interwaste (Pty) Ltd (Interwaste). * Due to operational issues no recycling activities (previously undertaken by M-SHEX Recycling in Kathu) have taken place since February 2019. (The most recent available records are dated February 2019.) No WMLs or registrations are available. 	<p>PPC Lime Acres NORA-SA Membership No RF025185.</p> <p>Olegra NORA-SA Membership No RF025185.</p> <p>Lime Acres AEL: 23/4/2/58.</p> <p>Emergency Services Transportation for Olegra.</p> <p>Various registrations from the Directorate: Community Services</p> <p>EnviroServ Waste Management Registration GPT-00-057 (expired 13 July 2019).</p>	Dup	Dup	The up to date and valid registration certificates of waste transporters should be available on file.	SHEQ Department



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		<p>* Bidvest Steiner removes the She bins which are taken to Kuruman, where after Compass Waste Services (Pty) Ltd (Compass) removes these for safe disposal. No safe disposal certificates are in place for Bidvest Steiner or Compass on site and the latest records are not available on site.</p> <p>Safe disposal certificates are available for PPC Lime Acres. This includes the manifest which indicates the volumes removed and the percentage water. Should the percentage water be too high, the end user is required to dispose of it at an alternative site as the oil cannot be separated for use. The manifests for the removal of water from the site by EnviroServ is available. Safe disposal certificate from Holfontein Hazardous Waste disposal Facility (Holfontein) is obtained from the facility.</p>					
	An exclusion zone of 360 m radius around the silo must fit within the main exclusion zone of 800 m. No infrastructure will be established within an 800 m zone around the ammonium nitrate silo.	Compliant.	Site observations.	3	3	No recommendations.	-
	Emulsion silo will be sited at a safe approved distance (app. 100 m) from the ammonium nitrate silo.	Compliant.	Site observations.	3	3	No recommendations.	-
	The silo will be underlain by concrete slabs and will be surrounded by concrete kerbings. The slabs will be constructed with a slope in order for water to be contained at a central point if and when required.	Compliant.	Site observations.	3	3	No recommendations.	-
	Magazine will be sited 100 m from emulsion silo.	Compliant.	Site observations.	3	3	No recommendations.	-
	Magazine will consist of prefabricated steel units namely 2 x 200 case Booster magazines and 1 x 200 case detonator magazine.	Compliant.	Site observations.	3	3	No recommendations.	-
	The area will be fenced off to ensure restriction of access.	Compliant.	Site observations.	3	3	No recommendations.	-
	A berm to the height of the containers will also be established around the magazine.	Compliant.	Site observations.	3	3	No recommendations.	-
	All storm water on the concrete floors will be directed to a sump.	Compliant.	Site observations.	3	3	No recommendations.	-
	The specifications of fencing for magazines according to the South	Compliant.	Site observations.	3	3	No recommendations.	-



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	African Police (B. 12/1) will be strictly adhered to.						
Storage of Diesel, Oil and Chemicals (Contamination issues associated with the storage of diesel, oils and chemicals)	Storage areas and vehicle maintenance areas will be surfaced and will have appropriate runoff containment measures, such as bunds and canals which will be channelled to sumps.	Projects are currently in place to surface larger areas at the Workshops. Maintenance areas have been increased. The following observations were made during the site visit: * At the King Refuelling Bay, oil spills are present outside of the bunded areas and a fuel spill is present at the pump area in the fourth sump and this is not contained. In addition to this, the sump between the area 1 and 2 filling pump indicates overflow. * At the Loading Equipment Workshop, diesel drums are stored outside of bunded areas. Hazardous skips are present, but not contained on bunded or concreted areas and with no roof or covering. * At the Bulk Diesel Storage area at King, hydrocarbons are present around the hazardous waste skip indicating a leaking skip; this skip is not covered or contained. * At the King Salvage area, diesel drums are stored, but not contained but on a surfaced area and with no bund present. * At the Bruce Salvage Yard, the hydrocarbon and battery storage areas is located on a surfaced area but not bunded. Hazardous bins are also placed on an unlined area. * At the Bruce Bulk Diesel Bay, hazardous skips are present at the parking area, has waste mixing present, are not in a contained area and have no lids present. The hazardous bund skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure takes place. The oil separator indicates spills on the brick paving. During the summer, the oil separator pumps sometimes fail and overflow – proof of this was visually present on site. This was reported to the Mine to fix based on the on-site inspections. * At the Bruce Workshop, spills are currently present around the contaminated soil buckets. Castrol drums are stored in uncontained areas; these are full. In this area there is a large presence of grease and oils spills. * At the Load-Out Transnet Workshop, some spills around the Drizit system are not contained.	Site observations.	0	3	Containment measure must be implemented at all areas where diesels are stored. It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.	SHEQ & Engineering Department
	All chemical, fuel and lubricant storage areas will be underlain by impermeable substrates.						
	Drums containing chemicals will be stored upright in a secure, bunded area with an impermeable surface.						
	Vehicles will be regularly serviced according to a pre-planned maintenance programme.	No areas of concern were observed around the linear infrastructure during the site visit. During the site visit the workshop personnel at the King Workshop explained that all vehicles must report to the workshop at least weekly for inspection.	Site observations.	Dup	Dup	No further recommendations.	-



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	Pipelines will be monitored continuously to limit spillage.	No areas of concern indicating unmaintained pipeline leaks were observed during the site inspection.	Site observations.	Dup	Dup	No further recommendations.	-
	There will be an incident management system, including procedures and training, for dealing with incidents.	This is being undertaken by means of the IsoMetrix system, whereby all observations identified during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental Department.	Site observations.	Dup	Dup	No further recommendations.	-
	Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.	Reportable incident is not clearly defined but rather considered based on the risk and potential impact. No reportable incidents have been incurred during the past year.	Site observations.	Dup	Dup	No further recommendations.	-
	Runoff from mine residue disposal facilities will be collected and evaporated or discharged to the process water circuit.	Paddocks, initially present at the Bruce Low-Grade ROM Stockpile are no longer present downgradient of the dumps. Paddocks are only present downgradient of the Discard Dump.	Site observations.	Dup	Dup	It is recommended that paddocks be constructed downgradient of the Low-Grade ROM Stockpiles, Discard Dump and WRD to contain unnecessary sedimentation and prevent sediment from entering the storm water systems.	SHEQ & Engineering Department
	The mine will implement the good waste management practice.	<p>A Waste Management Procedure is in place on site. In general, the content of the procedure is what has been communicated to the auditors on site.</p> <p>Waste containments are labelled on site, but various areas for improvement were observed in terms of the type of bins, colouring and labelling consistency. The Waste Management Procedure contains the statement: "Hazardous waste must be stored in containers (including lids) made of materials that are compatible with the waste. Hazardous waste containers must be in good condition and free of leaks or any residue on the outside of the container. Unacceptable containers include household detergent and food service containers. The best container for your hazardous waste is the original container." The hazardous waste skips and containers are generally not covered on site.</p> <p>At the time of the site investigation the Mine was in the process of changing waste management suppliers to Interwaste (Pty) Ltd (Interwaste), which provided a constraint in waste management with various overfull bins and containments present. During the last day of the audit, Interwaste was on site, and clean up has commenced.</p> <p>In terms of the implementation of waste management procedures the following observations were made:</p>	Waste Management Procedure: 2016-12-06	Dup	Dup	<p>It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.</p> <p>It is recommended that hazardous waste skips on site be equipped with lids and be used in accordance with its purpose.</p>	SHEQ Department



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		<p>* At the King Laydown area, littering is present. Dustbins are provided but not in use.</p> <p>* At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently banded.</p> <p>* At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed.</p> <p>* At the King Loading Equipment Workshop, hazardous skips are present, not contained on banded or concreted area and have no roof or covering.</p> <p>* At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained.</p> <p>* At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not banded. Hazardous bins are placed on an unlined area. Some drums are stored outside banded areas.</p> <p>* At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present.</p> <p>* At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted.</p> <p>* At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills.</p> <p>* At the TMM Workshop at Bruce, hazardous skips are present with no lids.</p> <p>* At the Transnet Workshop, the hazardous waste bin filled with domestic waste.</p> <p>* At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing.</p> <p>* Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints.</p> <p>* At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint</p>					



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		<p>experienced to get the service suppliers (Interwaste) on site. These included:</p> <ul style="list-style-type: none"> * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed). 					
Paste Disposal Facility (Risk prevention)	Risk management of the paste disposal facility will be implemented and will also consist of:	All infrastructure has been constructed as per the approved site layout plans, which were subjected to geotechnical investigations.					
	Periodically monitoring system conditions and performance.	Weekly, monthly and quarterly monitoring is being undertaken on the Paste Disposal Facility by the engineering contractors (SSMS) and the third party Professional Engineer (Guillaume de Swart – Geo Tail).					
	Updating the risk assessments as this new information is obtained.	According to the Annual Paste Disposal Facility Structural Stability Report, SSMS has been appointed as the specialist operator for the Paste Disposal Facility. The SSMS site manager carries the Regulation 2.6.1 (Mine Health & Safety Act) subordinate manager appointment and he is directly responsible for the operation of the Paste Disposal Facility. SSMS maintains the daily logbook and undertakes formal inspections on a daily, weekly, and monthly basis. Mine management attends the monthly inspections and meetings. SSMS is responsible for the monitoring of critical parameters, as part of the risk management system. The residue disposal management team signs off the information monthly.	Metallurgical Processing Monthly Checklist. Metallurgical Processing Weekly Checklist. SSMS Daily Supervisor Checklist. Annual Paste Disposal Facility Structural Stability Audit Report – September 2018.	3	3	No further recommendation.	-
	Identifying, evaluating and implementing additional risk reduction measures in the future.	According to the Structural Stability Audit Report, the existing total freeboard in all three basins is adequate to cater for all four design storms considered plus an additional 0.8m dry freeboard. The report further states that the factors of safety are satisfactory for normal operating conditions, but that it is assumed that the management of the facility will be adequate and the need					



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		to monitor the identified critical parameters is essential. The report further states that there are no high structural stability risks identified for the Khumani Paste Disposal Facility.					
Interested and Affected Parties (Environmental Awareness Plan)	Assmang Limited has an integrated environmental, safety and health awareness plan in place, which will be implemented at the BKM Mine. The following measures should however be included or adapted to be specific to the BKM operations. The induction will include the following:	All employees and contractors are subjected to induction. Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens.	Site observations. Contractor Management Procedure (Document Number: SP_155129)	3	3	It is recommended that the planning meetings for all areas must be used to present the outcomes of monitoring and present possible causes and actions.	SHEQ Department
	Ensure that all employees are aware of their individual and their job descriptions potential impact on the environment.	A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations though.					
	Employees are aware of any ecological sensitive, culturally sensitive and historical sensitive sites.	The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.					
	The measure and procedures to follow should ecological sensitive, culturally sensitive or historical sensitive sites be detected.	Risk assessments must be conducted by all contractors operating on site.					
	The preventative measures and procedures to undertake in order to reduce the risk of a potential impact.						
Interested and Affected Parties (Environmental Awareness Plan - Environmental committee)	An Environmental Committee (EC) will be established as part of the Future Forum to keep Interested and Affected Parties (I&APs) informed of the significant environmental aspects identified through the Environmental Management System (EMS).	The mine is undertaking regular forum meetings which are attended by surrounding farmers, surrounding mines, municipality, Tshiping Water Users Association.	Site observations. Minutes of meetings are available on site.	3	3	No recommendations.	-
	I&APs will have the opportunity to raise environmental concerns during the committee sittings.						



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	Records will be kept of all decisions and concerns.						
	All issues and concerns raised will be addressed within a specific timeframe as approved by the relevant stakeholders and authorities.						
	The EC will be chaired by the Environmental Manager, or another appropriately appointed individual.						
	Bi-annual forum meetings will be held at which time stakeholders will be presented with the opportunity to raise issues and concerns. Should the stakeholders require more meetings (i.e. quarterly) this will be undertaken.						
Interested and Affected Parties (Environmental Awareness Plan - Publications)	The quarterly distribution of the information newspaper at Beeshoek will be implemented at BKM to ensure that all parties are aware of the status of environmental, safety and health issues at the mine. The newspaper will further provide information regarding specific environmental issues (i.e. plant species which should be protected), which the employees can implement and make them more knowledgeable in the working environment.	The Khumani Sun is published monthly.	Site observations.	3	3	No recommendations.	-
Interested and Affected Parties (Environmental Awareness Plan - (Communication from external parties and employees))	Communication from external interested and affected parties will be received by e-mail, fax, telephonically or by mail. Where required a written response will be sent, on receiving such communication, by the appropriately appointed individual under signature of the Environmental Manager, to the respective interested and/or affected party.	The Mine has a forum with a farmer representative (liaison). During a meeting held with the farmers on 23 November 2017, the farmers confirmed how well the communication system operates. Ongoing meetings are undertaken with minutes available for January 2019.	Minutes are available on site.	3	3	No recommendations.	-
	All telephonic or facsimile correspondence received on the mine will be forwarded to the Environment Department for action.	The Licence Holder is aware of this condition.	Site observations	3	3	No recommendations.	-
	All events or concerns will be captured on the EMS database and will receive action.	Compliant. IsoMetrix is utilised for such purpose.	Site observations.	T/N	T/N	No recommendations.	SHEQ Department
Environmental Symposiums	Environmental symposiums will be held with management, and selected groups	The Mine is undertaking regular forum meetings which are attended by surrounding farmers, surrounding mines,	Site observations.	3	3	No recommendations.	-



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	of supervisors/foremen and/or employee representatives. This will take the form of an open discussion between the environmental department and these individuals. The symposiums will aid in environmental awareness being generated at all levels, as well as assist the environmental department in defining all, or new, environmental issues, concerns and pollution sources. This should be undertaken on a quarterly basis.	<p>municipality, Tshiping Water Users Association.</p> <p>Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p> <p>Risk assessments must be conducted by all contractors operating on site.</p>	Contractor Management Procedure (Document Number: SP_155129)				
Environmental Open Days	If necessary (i.e. requested by the environmental forums), environmental open days can be arranged by the operation's environmental department. Open days will be utilised to discuss environmental issues in a less formal manner, thereby allowing employees the opportunity to participate in environmental management by educating them about environmental pollution and waste management in areas beside the workplace (e.g. at home). The open days do not necessarily have to be	No open days have been held to date. This should be considered should any complaints be received by stakeholders.	Site observations.	T/N	T/N	It is recommended that open days be held on the Mine to create awareness.	SHEQ Department



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	confined to employees only, but may be made open to employees' families and schools so as to ensure that the principles of environmental management, pollution prevention, waste management and sustainable development are gained by the communities surrounding the operation						
Interested and Affected Parties (Environmental Awareness Plan - In-house Training)	In-house training sessions will be held with relevant employees. The training sessions will be determined by the environmental department, and will allow employees to participate in determining what the environmental issues and concerns are with regard to their specific occupation.	Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.	Site observations. Contractor Management Procedure (Document Number: SP_155129)	3	3	No recommendations.	-
Interested and Affected Parties (Environmental Awareness Plan - On the job training)	Employees will be given details of the expected environmental issues and concerns specifically related to their occupation (on the job training).	The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.					
	Employees will be trained on how to respond to an environmental problem or source of environmental pollution.						
	The training will be ongoing, and all new employees will be provided with the same standard of training as existing employees.						
Interested and Affected Parties (Environmental Awareness Plan - (Mentorship and talent management plan)	A mentorship plan will be developed and implemented to assist in the identification, training and assessment of mentors. Each succession plan candidate (HDSA and other) will be assigned a mentor. This provides for the facilitation of developmental needs and specifically where relevant the transference of skills, knowledge and competence to HDSA's in an effort to ensure that development is fast tracked.	Skills development and succession planning is in place on site in line with the Social and Labour Plan requirements which includes Skills Development Plans, Mentoring Programmes, Succession Plants, etc.	Site observations.	3	3	No recommendations.	-



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DECOMISIONING PHASE AND CLOSURE							
Geology	The underlying geology would have been removed throughout the life of mine; therefore, there are no feasible means to rehabilitate the geology. The BKM Mine will however rehabilitate the opencast pits to be safe.	<p>The Mine is still in the ramp-up period with opencast being established. Various opencast pits have been backfilled, which mainly include the smaller satellite pits (BC04). Other backfilling activities include:</p> <ul style="list-style-type: none"> * The backfilling of Opencast Pit BC01 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan. The backfilling plan allows for a planned 15% backfill per annum over a period of 6-7 years; * Opencast Pit BC02 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC02 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; * Opencast Pit BC03 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC03 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; and * The enviro berm associated with Opencast Pit BA still requires completion of the remaining 40%. <p>Volumes are being kept on site. Actual backfilling volumes for Opencast Pit B04 are available as Lenfield was responsible for the backfilling and was paid per quantity. In terms of Opencast Pits BC01, BC02 and BC03, volumes are recorded on MineStar (mine load and haul programme). The Environmental (SHEQ) Department is in the process of consolidating all this information to develop a track record for the volumes disposed.</p>	Site observations.	Dup	Dup	Ongoing rehabilitation should be prioritised as far as possible. Records of backfilling volumes should be kept on an internal recording system.	SHEQ & Mining Department
Topography	<ul style="list-style-type: none"> o All infrastructure will be removed. The area will be rehabilitated to be free draining. All stockpiles and dumps will be vegetated and would have been shaped throughout the life of mine to ensure that they will blend in with the surrounding topography. o Final dumps will be sloped to 18 degrees and will be vegetated to ensure stability. 	The Licence Holder is aware of this condition and the design drawings of the dumps indicate the correct shape.	Site observations.	T/N	T/N	No current recommendations.	-
Soils	<ul style="list-style-type: none"> o All structures and infrastructure will be demolished (apart from the actual paste disposal facility and the dumps which will remain), and all imported materials removed. o Waste rock from the dumps will be 	The Licence Holder is aware of this condition. However, take note that the areas where activities have been completed is successful in terms of self-succession. In a subsequent EMP (Barrier Pillar, 2008) has amended this condition to only require amelioration and vegetation should self-succession not be successful.	Site observations. 2008 EMP	T/N	T/N	No recommendations.	-



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	<p>returned to the open pit on a continual basis as mining progresses.</p> <ul style="list-style-type: none"> o The paste disposal facility will be shaped. o Stockpiled topsoil will be spread over the top and sides of the paste disposal facility and over other associated rehabilitated areas. o Compaction will be managed to protect the soil structure (i.e. ripping of 500 mm). Fertiliser will be applied at the required rate as determined by soil laboratory analysis. o The rehabilitated areas will be ameliorated and seeded with the recommended seed mix and the planted area will be watered thoroughly and regularly. Growth will be monitored on a quarterly basis. 						
Land Capability	<ul style="list-style-type: none"> o The greater part of the site will have the capability of at least grazing land, where grazing land currently exists. The rehabilitated paste disposal facility and the opencast voids will, however, not be used as grazing land due to the moderately steep side slopes where erosion could occur if grazed. o Due to the economic implications associated with double handling – backfilling, the BKM Mine will aim to backfill as much material as possible during the operational phase (172 million tons). However, all the opencast pits will not be backfilled, and voids will remain. According to the 2005 mine schedule 11 of the 19 opencast pits will be backfilled (Refer to Section 4, Table 4-11). The opencast pits will be rehabilitated in such a way to be safe upon closure. This will be undertaken by either: <ul style="list-style-type: none"> o Fencing or berm the area off; o Establishing indigenous thorny vegetation; o Establishing of clearly visible safety and warning signs. 	<p>Backfilling will still be undertaken as per original volumes, however the backfilling schedule has changed substantially as the Mine wishes to keep pits open for longer to ensure the optimal utilisation of these infrastructure and resources.</p>	Site observations.	TBA	TBA	<p>It is recommended that this condition be amended in line with Regulation 34 of the NEMA. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020. The condition should be amended to allow for the backfilling process to be undertaken in a dynamic mining operation and in line with the commitments made in the Financial Provision – Annual Rehabilitation Plan.</p>	SHEQ Department



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	<ul style="list-style-type: none"> o This area will revert to near pre-mining land at closure. 						
Vegetation	<ul style="list-style-type: none"> o During decommissioning topsoils will be replaced and the affected areas will be rehabilitated using indigenous vegetation common to the area. The rehabilitation of the soils will play a significant role in the rehabilitation of vegetation. o After closure, rehabilitate and landscape the dumps and stockpiles, to be free draining and to blend into the surrounding environment. o Clear all infrastructure and revegetate the areas to near pre-mining conditions. o Naturally occurring (indigenous) species will be used in the rehabilitation process. o To increase diversity in rehabilitated areas, mulch seeded areas with seed bearing hay cut in natural veld areas or incorporate locally harvested seed in the initial seed mix as specified in Table 6 4; o Monitoring will be undertaken to ensure that the rehabilitated areas are self-sustaining and that weed / alien plants are under control. Monitoring will only cease once this has been confirmed. 	<p>The Licence Holder is aware of this condition. However, take note that the areas where activities have been completed are successful in terms of self-succession. In a subsequent EMP (Barrier Pillar, 2008) has amended this condition to only require amelioration and vegetation should self-succession not be successful.</p>	<p>Site observations. 2008 EMP</p>	T/N	T/N	No recommendations.	-
Surface Water	<ul style="list-style-type: none"> o The surface water quality will be monitored, where available, in order to determine/verify the effect of the mining operations on surface water quality. o The results will be presented to the DWAF on a yearly basis. o The clean water diversions on King and King / Mokaning will be engineered and constructed in such a way to be stable and to remain after closure. o All clean and dirty water systems will be removed where infrastructure has been removed and the area been 	<p>The Licence Holder is aware of this condition.</p>	<p>Site observations.</p>	T/N	T/N	No current recommendations.	-



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	<p>successfully rehabilitated.</p> <ul style="list-style-type: none"> o Clean water systems upstream from the open voids will remain to ensure that there is no impact on the run off of the catchment. o The area will be rehabilitated to be free draining by implementing storm water drainage systems, which will follow the natural drainage direction. 						
Groundwater	<ul style="list-style-type: none"> o Groundwater modelling shows that any contamination from the paste disposal facility will undergo significant dilution and will tend to move towards the mined-out pits where the drawdown of the groundwater level has been the most significant during mining. The current understanding of the groundwater regime suggests that no decant will occur from any of the pits due to the following reasons: <ul style="list-style-type: none"> o High overall aquifer transmissivity around the pit areas, leading to very flat groundwater gradients not only in the spoils in the mined-out pits but also in the surrounding aquifers. o Relatively low natural groundwater and surface gradients so that the water table will not easily intersect the surface topography. o Should monitoring results however indicate an expected decant, the volumes will be quantified through calibration of the groundwater model. Management / containment measures that will be implemented will aim at creating a situation where the impact from decant will not adversely affect surrounding users. o The mined out pits could be utilised as strategic sources of community water supply after the mining operations have ceased. o Management measures will be implemented to prevent excessive run-off formation through the discard and surrounding areas into the open pits that could contribute to 	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-



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	<p>contamination in the form of suspended matter, o Measures will be implemented to prevent or minimise seepage to groundwater through dirty areas which may contribute to groundwater contamination, and o Opencast pits will be backfilled as per the given schedule so that groundwater recharge is maximised to facilitate faster recovery of the dewatered aquifers and provide a sustainable source of water supply for future generations, as the water quality should still be suitable for human consumption after mining. o Rehabilitation of the paste disposal facility will commence once the dirty water management areas are rehabilitated and the need for retention of contaminated water no longer exists. This will contribute to the limitation of infiltration of affected water. o The berms to divert clean water around dirty areas will be removed once the dirty water management areas are rehabilitated and re-vegetated. o Final rehabilitation of the opencast pits will be undertaken, including reshaping to encourage clean surface water runoff. Rehabilitated pit surfaces could be left to encourage recharge as these areas could be used as sustainable sources of good quality water after mine closure. Rehabilitation of the opencast mining area will be undertaken so as to represent the pre-mining surface drainage and vegetation as closely as possible. o The migration of any groundwater contamination plume will be verified through monitoring and modelling during the decommissioning phase and suitable mitigation measures implemented before the closure is applied for, should it prove to be necessary. o Through the monitoring</p>						



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	and calibration of the groundwater model during the operational phase - specifically regarding the recharge rate and water level draw down - the closure strategy will be re-assessed. The long-term groundwater management measures decided upon will be implemented prior to final rehabilitation of the BKM land use area.						
Sites of Archaeological and Cultural Interest	All access roads to gravesites will remain for families to access those. The mine will ensure that the area is safe.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Visual	<ul style="list-style-type: none"> o Final shaping and dumping of the Paste Disposal facility will be implemented such that the sides of the facility are articulated in a fashion that create areas of light and shadow interplay. o Harsh, steep engineered slopes will be avoided if at all possible as these could impose an additional impact on the landscape by contrasting with existing topographic forms of the nearby hills. The paste disposal facility will remain after decommissioning and it is important that a long-term view of its integration with the surrounding landscape be taken. o Topsoiling, grass seeding and planting (shrubs and trees) of the final dump will be undertaken. o A combination of indigenous trees and shrubs will be planted along the southern side of the N14 as a 'buffer' and to partially screen views to the dam. o Rehabilitate the outside slopes of the stockpiles with appropriate grasses (long term sustainability without management) as soon as is practical. o Harsh, steep engineered slopes will be avoided as these could impose an additional impact on the landscape by contrasting with existing natural 	The Licence Holder is aware of this condition. However, take note that the areas where activities have been completed is successful in terms of self-succession. In a subsequent EMP (Barrier Pillar, 2008) has amended this condition to only require amelioration and vegetation should self-succession not be successful.	Site observations. 2008 EMP	T/N	T/N	No recommendations.	-



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	<p>topographic forms and because it is difficult to sustain vegetation on steep slopes in the long term.</p> <ul style="list-style-type: none"> o Final shaping will be implemented such that the final profile of the rehabilitated overburden dumps is formed to emulate natural contours of the area i.e. a flat-topped profile is not desirable – rather a profile that emulates the nearby hills is proposed. The dumps will remain after decommissioning and it is imperative that a long-term view of its integration with the surrounding landscape be taken. o The mine will research whether there are alternative uses for the mine infrastructure. If not possible the components will be properly removed 						
Socio Economic Activities	<p>The BKM Mine will have a lifespan of more than 30 years. At such time as it becomes necessary to contemplate downscaling or closure, processes to be followed will be similar to those currently being implemented in view of the anticipated downscaling of Beeshoek mine. These include the establishment of Social Plan Forums as required by the Minerals and Petroleum Development Bill, to address Social Plan issues in a proactive manner.</p> <ul style="list-style-type: none"> o If and when retrenchments are implemented at BKM Mine, Assmang will ensure that the Future Forum is advised and that Section 189 of the LRA will be responsibly applied. Portable internal skills training programmes will be available to assist employees in procuring alternative employment. o The Assmang Group is committed to the following mechanisms to save jobs and to avoid job losses wherever possible: <ul style="list-style-type: none"> o Redeployment 	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-



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	<ul style="list-style-type: none"> o Early Retirement o Voluntary Retrenchment o Cessation of full time employee recruitment o Change in shift cycles o Sunday work o Wage moderation o Employee subcontracting. o Where job losses will be inevitable, indirect job security can only be ensured by investing in the development of portable skills and life skills for employees involved, and ensuring as far as possible the readiness of employees to undertake self-employment or to apply entrepreneurial skills. o All commitments as per the Social and Labour Plan will be implemented. o Assmang Group is aligned with various MQA structures such as unit standard generation, assessor and moderator training, levy reclaiming, as well as skills facilitator arrangements and appointments. In keeping with this practice, BKM Mine will be registered for the Skills Development Levy. o Assmang Group policy requires its mines to provide and facilitate courses for non-mining related training for employees as well as for community members from surrounding communities, as is the case with the Beeshoek mine. The BKM mine will continue in this practice by providing similar courses as provided at Beeshoek. Some of these courses are listed below: <ul style="list-style-type: none"> o A wide range of computer training courses; o A range of life skills training courses based on the internationally recognized Plato system that reflects the tremendous range of life skill training courses available; o Needlework training; 						

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	<ul style="list-style-type: none"> o Upcoming Farmer training in collaboration with Department of Agriculture, in grazing methods, stock selection, etc; o Entrepreneurial training for employees and local small business people etc; o Business Wise Training for employees; o ABET training; o Leadership training for local authorities; o Mindset training for local leadership; and o Diversity training. 						
Storage of explosives	All infrastructure housing explosives will be demolished and removed from the site. The relevant suppliers will remove any excess explosives.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Storage of Diesel, Oil and Chemicals	o All infrastructure housing diesel, oil and chemicals will be demolished and removed from the site. The relevant suppliers will remove any excess material.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Paste Disposal Facility and other Dumps	<p>The minimum objectives for the closure and rehabilitation of a dump must be to prevent air and water pollution in accordance with the requirements of the relevant regulations and with good international practice. The intended end use should take into consideration the prior land use and the location with respect to current and potential future socio-economic development. The objectives of the closure and rehabilitation measures will be:</p> <ul style="list-style-type: none"> o To establish a self-sustaining solution with a minimum of on-going maintenance; o To minimise off-site impacts; o To create safe and stable landforms; o To return the site to beneficial land use; and, o To obtain a closure certificate. 	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-



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	<p>Paste Disposal Facility The stability of the proposed final outer slope of the paste disposal facility has been assessed using circular potential failure surfaces (Bishop simplified method) in the limit equilibrium program SLIDE. This program allows for the analysis of numerous potential failure surfaces, and the identification of the critical surface with the lowest factor of safety against failure. The average overall side slope angle will be approximately 1:3 (vertical to horizontal). Intermediate slopes will be constructed to 1:2.5 (vertical to horizontal) with bench widths varying between 6 m to 10 m. For the purpose of stability analysis, a phreatic level has been assumed. No excess water pressures have been assumed for the paste or the underlying soil. The results of the stability analysis (see Figure 6 8 – page 6-110) indicate that the factor of safety at final height will be approximately 2.2 (overall). It is therefore concluded that the factor of safety for overall stability will be satisfactory under normal operating conditions. However, it assumes that the management of the paste disposal facility will be adequate and the need to monitor phreatic conditions at the outer embankments is critical.</p>	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
	<p>Other DumpsThe detailed closure plan will be developed during the life of the mine. The purpose in preparing a conceptual closure plan is to ensure that the dump design and construction procedures are compatible with the achievement of final closure and rehabilitation to accepted environmental standards and at a reasonable cost.</p>	The Licence Holder is updating the Closure Reports in terms of financial provision annually.	Financial Provision Reports, May 2019	3	3	No further recommendations.	-



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Infrastructure	<ul style="list-style-type: none"> o All buildings in which explosives were stored will be demolished. The relevant supplier will remove all the explosives. o Recyclable or reusable components of buildings and structures will be salvaged. o Foundations will be removed to a depth of 1 m below surface. o Building rubble will be used as landfill or buried such that there is 1 m of soil material over the buried rubble. o Other surface infrastructure constructed by the mine (i.e. roads, railways and power lines) will be removed if it proves to inhibit land use at decommissioning. The soils and land capability will be rehabilitated to near pre-mining conditions. 	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Waste	All waste on the mining area will be collected and will be removed to a permitted disposal site. Waste materials will be made available for sale as scrap or donation, where applicable.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Mine dirty water dams	Upon mine cessation, it is not likely that any dirty water will occur on the mine. Structures (i.e. containment dams etc.) previously implemented on the mining area will be removed.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Maintenance	All rehabilitated areas will be monitored, and all post-closure impacts will be managed. Monitoring and management will only cease when the area is self-sustaining.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Authorities	Any changes to the closure objective of the EIA / EMP will be communicated to all the relevant parties. The objectives will then be drafted in consultation with the relevant authorities.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Infrastructure removal and rehabilitation							
Buildings	All infrastructure will be removed and rehabilitated, should no alternative use be found for the structures. Foundations will be removed to a depth of 1 m below surface.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-



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	An alternative use for the brick structures will first be sought i.e. they can either be sold/donated to the post-mining landowner on sale of the land. If an alternative use cannot be found, the buildings will be demolished. All material recovered from the demolition of buildings / structures will either be transported to a permitted disposal site, sold as scrap or made available to the local community as building materials (provided they are in a satisfactory condition following demolition).						
Linear infrastructure	Linear infrastructure constructed by the mine (i.e. roads, railways and power liens) will be removed if it proves to inhibit land use at decommissioning. The soils and land capability will be rehabilitated to near pre-mining conditions. The pit access roads and haul roads will be rehabilitated by ripping these structures to a depth of 500 mm. All fences erected around the mine will be dismantled and either disposed of at a permitted disposal site or sold as scrap (provided these structures will no longer be required by the post-mining land owner). Fences erected to cordon-off dangerous excavations will remain in place and will be maintained as and when required. The overland conveyors and Rapid Load-Out Facility will be disassembled, and the components removed from the site. The material can either be sold (as a unit) or the components sold as scrap.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Dams	Upon mine cessation, it is not likely that any dirty water will occur on the mine. Structures (i.e. containment dams etc.) previously implemented on the mining area will be removed.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Monitoring	Annual surface surveys (audits) will be undertaken over mined out areas to	Compliant, areas of disturbance as well as the monitoring of subsidence is undertaken frequently.	Site observations.	3	3	No further recommendations.	-



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	establish the degree of subsidence and the success of the re-establishment of vegetation on rehabilitated areas.						
Mine Residue Disposal							
Paste Disposal	<p>Throughout the life of a dump it is necessary to consider closure and post-closure care of the facility. It is not possible at this stage to formulate a rigorous closure plan. However, a general outline of the likely closure requirements has been defined. This should be considered to be preliminary and will depend on the requirements of the final design, actual tonnages placed, dump construction and legislative requirements at the time of closure. Therefore, the detailed closure plan will be developed during the life of the mine. The purpose of preparing a conceptual closure plan is to ensure that the dump design and construction procedures are compatible with the achievement of final closure and rehabilitation to accepted environmental standards and at a reasonable cost.</p> <p>The Paste Disposal Facility will be engineered and constructed in such a way to remain stable upon closure. The facility will further be constructed to blend in with the surrounding environment.</p> <p>Topsoil will be stripped. During stripping operations, topsoil will be separated from trees and brush and stockpiled for future rehabilitation measures. Topsoil stockpiles will have limited height, will be graded to specified slope angles and will not be compacted during storage. These stockpiles will be contoured so as to blend with the natural environment and stabilized with vegetation.</p> <p>The required final surface geometry will be achieved by the control of deposition during the life of the facility,</p>	<p>The Rehabilitation Plan as presented in the EMP for the Paste Disposal Facility is in line with the current operational plans. However, in terms of topsoil management the dumps on site are not demarcated, the slopes are steep and subject to erosion.</p>	<p>Site observations.</p>	1	3	<p>A detailed survey should be undertaken to determine the exact height of the stockpiles.</p> <p>It is recommended that a soil specialist assesses the integrity of the topsoil stockpiles and whether the current stockpiling techniques are enough. This is specifically based on the height of the stockpiles and the volumes of traffic over these facilities.</p> <p>In addition to this, the Mine should undertake a topsoil balance on site to determine whether sufficient topsoil is available for the required rehabilitation practices in the future.</p> <p>The EMP should be updated to make provision for new topsoil management practices to ensure that the practices on site can be undertaken in a manner to protect the integrity of the soil resources. Where this is not possible, the Mine will have to investigate the need for soil fertilisation in consultation with the soil specialist.</p>	<p>SHEQ Department</p>



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	<p>particularly during the final years, and by subsequent limited earthworks. It is intended that the upper surface of the residue disposal facility will be shaped to retain surface run-off and thus to prevent the erosion of the outer slopes and the discharge of polluted solids to the natural streams. The outer slopes will be reshaped to ensure structural stability and to limit erosion damage. It will be advantageous to commence rehabilitation during the operating life of the facility and, for this reason, it is possible that deposition may be controlled during the last few years to allow the closure of sections of the residue disposal facility prior to final decommissioning.</p> <p>The residue is expected to have a low permeability with the result that seepage from rainwater infiltration will be very limited. This low permeability, coupled with the high rates of evaporation at the site, indicates that the installation of a topsoil cover will probably be necessary in order to provide a growth medium for vegetation and to minimize dust generation. It is therefore proposed that the facility be covered with a 150 mm thick layer of topsoil. This will be required over the top surface only as it is intended that the downstream slope of the impoundment wall will be progressively vegetated during operation in order to reduce erosion and visual intrusion.</p> <p>The operational water decant system will be abandoned after the draining of the supernatant pool, and the surface structures will be removed. A system of diversion canals to prevent storm water runoff from entering the residue disposal area will be included in the final closure plan.</p> <p>Surface water falling on the top surface</p>						



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	<p>of the residue disposal facility will be held on the facility. The top surface will be divided into separate compartments, or the water will be allowed to drain in a controlled fashion to a pool in the position of the old supernatant pool. The decision will depend upon information gathered during the operating period. Consideration will also be given to the need for an emergency spillway for decanting excess water from the top of the residue dam.</p> <p>The run-off from the side slopes of the impoundment wall will be controlled by the creation of engineered benches. Catchment paddocks at the toe of the impoundment wall will be the final control mechanism.</p> <p>Vegetation on the surface and outer slopes of the residue disposal facility will reduce erosion and dust generation. It will be necessary to obtain the maximum benefit from the residual moisture in the residue and from the seasonal rainfall. Thus, efforts should be made to commence the establishment of vegetation during the operating life of the facility. It will certainly be possible to begin to establish vegetation on the outer slopes. It is anticipated that the mine will carry out experiments from the time of commissioning of the project. Information available from re-vegetation exercises in similar conditions will be gathered during the planning of the tests.</p>						
Overburden and low-grade ROM Dumps	<p>Although continuous backfilling will be undertaken throughout the life of mine, overburden and low-grade waste ROM stockpiles will remain as dumps. At current levels it is envisaged that 1.3 percent (1.6 million tons) of the Bruce Overburden and Low-Grade ROM Stockpile will be reworked. The</p>	<p>The Rehabilitation Plan as presented in the EMP for the Low-Grade ROM Stockpiles is in line with the current operational plans. At present however, no benches are incorporated into the operational design of the facility. The designs of the facility as presented for the 2019 WULA however incorporate these lifts.</p> <p>However, take note that the areas where activities have</p>	Site observations. 2019 Designs	1		A Code of Practice should be developed for the Mine Residue Deposits on site to ensure that deposition going forward take into consideration final design slopes.	Mine Planning



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	<p>remainder of the stockpile will remain as a rehabilitated overburden dump upon decommissioning.</p> <p>At current levels it is envisaged that 4.9 percent (19.4 million tons) of the King / Mokaning Overburden and Low-Grade ROM Stockpile will be reworked. The remainder of the stockpile will remain as a rehabilitated overburden dump upon decommissioning.</p> <p>To ensure that the remaining volumes of the dumps are stable the following will be undertaken:</p> <ul style="list-style-type: none"> o The required final surface geometry will be achieved by the control of construction activities during the life of each dump. Generally, intermediate side slope angles of 1:1.5 (v:h) with 15 m wide benches at 10 m vertical intervals are proposed. This will result in an average overall slope angle of 1:3 (v:h). It is intended that the upper surface of the dumps will be shaped to retain surface run-off and thus to prevent the erosion of the outer slopes and the discharge of polluted solids to the natural streams. The outer slopes will be reshaped to ensure structural stability and to limit erosion damage. o It will be advantageous to commence rehabilitation during the operating life of the dumps. o The dumps be will covered with topsoil. This will be required over the top surface only as it is intended that the outer slopes of the dumps will be progressively vegetated during construction in order to reduce erosion and visual intrusion. o A system of diversion canals to prevent storm water run-off from entering the dump areas will be included in the final closure plans should a potential of contamination exist. Surface water falling on the top surface of the dumps will be held on 	<p>been completed are successful in terms of self-succession. In a subsequent EMP (Barrier Pillar, 2008) has amended this condition to only require amelioration and vegetation should self-succession not be successful.</p>					



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	<p>the dumps. The top surfaces will be divided into separate compartments. The run-off from the side slopes of the dumps will be controlled by the creation of engineered benches. Catchment paddocks and dams along the perimeter of the dumps will be the final control mechanism.</p> <ul style="list-style-type: none"> o The slopes will be vegetated. 						
Discard dump	<p>Approximately 5 percent of the discard dump could be reworked - if it has a saleable it could be economically viable. To ensure that the remaining volumes of the dumps are stable the following will be undertaken:</p> <ul style="list-style-type: none"> o The required final surface geometry will be achieved by the control of construction activities during the life of each dump. Generally, intermediate side slope angles of 1:1.5 (v:h) with 15 m wide benches at 10 m vertical intervals are proposed. This will result in an average overall slope angle of 1:3 (v:h). It is intended that the upper surface of the dumps will be shaped to retain surface run-off and thus to prevent the erosion of the outer slopes and the discharge of polluted solids to the natural streams. The outer slopes will be reshaped to ensure structural stability and to limit erosion damage. o It will be advantageous to commence rehabilitation during the operating life of the dumps. o The dumps will be covered with topsoil. This will be required over the top surface only as it is intended that the outer slopes of the dumps will be progressively vegetated during construction in order to reduce erosion and visual intrusion. o A system of diversion canals to prevent storm water run-off from entering the dump areas will be included in the final closure plans should the potential of contamination exist. Surface water falling on the top surface of the dumps 	<p>The Rehabilitation Plan as presented in the EMP for the Discard Dump is in line with the current operational plans. At present however, no benches are incorporated into the operational design of the facility. The designs of the facility as presented for the 2019 WUL however incorporate these lifts. However, take note that the areas where activities have been completed are successful in terms of self-succession. In a subsequent EMP (Barrier Pillar, 2008) has amended this condition to only require amelioration and vegetation should self-succession not be successful.</p>	<p>Site observations. 2019 WRD Designs.</p>	1	3	<p>A Code of Practice should be developed for the Mine Residue Deposits on site to ensure that deposition going forward take into consideration final design slopes.</p>	Mine Planning



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	will be held on the dumps. The top surfaces will be divided into separate compartments. The run-off from the side slopes of the dumps will be controlled by the creation of engineered benches. Catchment paddocks and dams along the perimeter of the dumps will be the final control mechanism if required. o The slopes will be vegetated.						
ROM and Export Stockpiles	The floor of the export stockpiles will be graded to remove all rock material in the base. This material will be passed through the plant. The roadways will be ripped to a depth of 500 mm, as will the floor of stockpiles to alleviate compaction. The soils will be ameliorated and seeded for rehabilitation	The Licence Holder is aware of this condition. However, take note that the areas where activities have been completed are successful in terms of self-succession. Subsequent EMPs (Barrier Pillar, 2008) has amended this condition to only require amelioration and vegetation should self-succession not be successful.	Site observations.	T/N	T/N	No current recommendations.	-
Opencast mining areas	The opencast pits will be backfilled (172 million tons of material) parallel to the mining operations. However due to the cost and double handling of material, voids will be left upon closure. At closure, any opencast pits that remain, will be made safe by a combination of fencing and planting of thorny indigenous vegetation around the pit perimeter to restrict access to the pit.	<p>The Mine is still in the ramp-up period with opencast being established. Various opencast pits have been backfilled, which mainly include the smaller satellite pits (BC04). Other backfilling activities include:</p> <ul style="list-style-type: none"> * The backfilling of Opencast Pit BC01 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan. The backfilling plan allows for a planned 15% backfill per annum over a period of 6-7 years; * Opencast Pit BC02 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC02 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; * Opencast Pit BC03 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC03 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; and * The enviro berm associated with Opencast Pit BA still requires completion of the remaining 40%. Pit BA still requires completion of the remaining 40%. <p>Volumes are being kept on site. Actual backfilling volumes for Opencast Pit B04 are available as Lenfield was responsible for the backfilling and was paid per quantity. In terms of Opencast Pits BC01, BC02 and BC03, volumes are recorded on MineStar (mine load and haul programme).</p>	Site observations.	Dup	Dup	Ongoing rehabilitation should be prioritised as far as possible. Records of backfill volumes should be kept on an internal recording system.	SHEQ & Mining Department



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		The Environmental (SHEQ) Department is in the process of consolidating all this information to develop a track record for the volumes disposed.					
Compliance Rating				567	666	85%	



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Table 6: MPRDA Licence Assessment (25 January 2007))

Number/Description	Requirement	Observation	Source Document / Observation	Rate	Target Rate	Recommendation	Responsible person
	ROD Conditions						
1	This approval doesn't purport to absolve Assmang Ltd from its common law obligations towards the owner (s) of the surface of land affected.	The Licence Holder is aware of this condition.	-	T/N	T/N	No further recommendation.	SHEQ Department
2	This approval provides no relief from the provisions of any other relevant statutory or contractual obligations.	<p>The Licence Holder is aware of this condition. The Mine is operating in terms of an approved WUL, WML and various Environmental Authorisations.</p> <p>Certain areas must be addressed in the WULA and future EMP Amendment, which include:</p> <ul style="list-style-type: none"> * The stockpiles are being constructed in terms of the approved designs and footprint areas as per the EMP, with the exception of the KM02 WRD at King, which has encroached beyond the footprint to the eastern portion of the site - although in areas indicated by past maps as disturbed. <p>Detailed water studies have been undertaken to optimise water management on site, and have been included into the current WUL Amendment. Various water use amendments will be applied for which will include:</p> <ul style="list-style-type: none"> * WRD J, which has commenced with construction - under the 2016 issued Environmental Authorisation, but has not been approved in the WUL as the 2016 WULA was withdrawn on request by the DWS during meeting with the Licence Holder, as this 2016 WULA is now included into the overall WULA for 2019. * The KM02 WRD design footprint has altered due to the active mining activities in this area and will have to be adjusted in terms of the WULA. * Various STPs are present on site which are to be included into the WULA. * Various tanks are present on site, which includes the Sedibeng Tanks, which have not in the past been included into the WULs. * A Section 21(j) water use is in place for dewatering for safe mining conditions at both King and Bruce - this use will likely commence in 2024 and must be linked to an actual use, such as a Section 21(a). 	<p><u>NEMWA:</u> § Permit 12/9/11/L812/8 for the Landfill Site and Hazardous Storage Facility.</p> <p><u>NWA:</u> § WUL Licence: 10/D41J/BC1J/2122 for the 2013 WUL.</p> <p><u>NEMA (and ECA):</u> § Permit 43/2006 for the development of an iron ore opencast mine with all associated infrastructure; § Permit 47/2009 for the Railway Line Diversion and Local Siding Establishment; § Permit 37/2012 for the expansion of diesel storage and a silo for explosives, construction of a tar road and additional refuelling station, storm water dams and storage tanks; § Permit 56/2013 for the Off-Grade 2 Plant; § Permit 21/2016 for the construction of the WHIMS Plant at Parson, the Expansion of the Parson Discard Dump, Bruce Low-Grade ROM Stockpile and King/Mokaning Low-Grade ROM Stockpile, and the establishment of additional Low-Grade Stockpiles at King; § NC30/5/1/2/3/2/1(070)EM for the WHIMS Plant and</p>	2	2	The areas which requires amendment, should be incorporated into the current WULA and future planned Environmental Authorisation Process scheduled for early 2020.	SHEQ Department



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Number/Description	Requirement	Observation	Source Document / Observation	Rate	Target Rate	Recommendation	Responsible person
			<p>silo project, 2018.</p> <p><u>MPRDA</u></p> <p>§ MPRDA ROD 2007 for the new Mining Operation and associated EMP dated February 2006;</p> <p>§ MPRDA RODs – undated 2007 (document date of modification states August 2007) for the Barrier Pillar and associated EMP dated April 2007 (this EMP resulted in a change to certain commitments by the Mine since the original EMP);</p> <p>§ MPRDA ROD 2011 for the additional infrastructure such the local siding in line with Permit 47/2009;</p> <p>§ MPRDA ROD 2012 for the additional infrastructure such as the diesel storage in line with Permit 37/2012.</p>				
3	All available topsoil must be stripped and stockpiled separately prior to any surface disturbance.	Topsoil is being stockpiled on designated areas at Bruce and King.	Site observations.	3	3	<p>It is recommended that a topsoil balance be undertaken for the Mine, to determine the volumes of topsoil available vs. the volumes required for successful rehabilitation.</p> <p>In the event that the volumes available are less than what is required, a greater volume of topsoil should be stripped at all new areas.</p>	SHEQ Department
4	Environmental management must conform to the Environmental Management Programme as approved.	Please refer to the assessment of the EMP presented herewith.	-	T/N	T/N	The findings of this 2019 Environmental Audit should be addressed by the Licence Holder before the next annual audit.	SHEQ Department
5	Mining activities must conform to all legislation and such other conditions as may be imposed by the Regional Manager or any other official of this office, duly authorised thereto.	The DMR inspected the mining area in November 2016 and made findings in terms of waste management, hydrocarbon management, workshop management and the contractors management. A requirement to further extent the concrete surface of the hazardous waste site at the Waste Sorting Facility at Parson was also raised. The Mine is	Site observation.	3	3	The Mine should develop a spreadsheet /list indicating the findings, actions, responsible persons, timeframes and close out completion.	SHEQ Department



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		upgrading all workshop areas to allow for more containment and improved maintenance procedures to reduce hydrocarbon spills.					
6	The company is responsible for all surface disturbances on the Mining area, which includes all historical surface disturbances.	Various historic mining disturbances (dumps and excavations) are present on Bruce from past Sishen Operations. There are current discussions with Sishen to obtain agreements in terms of the rehabilitation of some of the mine residue deposits.	Site observations.	T/N	T/N	A strategy to rehabilitate the historic activities should be developed. Agreements should be signed with Sishen where the company will undertake the rehabilitation and where this is not possible these structures must be included into the financial provision.	SHEQ Department
7	The financial provision provided in terms of Section 41 and Regulation 53 of the Act must be periodically reviewed and adjusted (Regulation 54(2) refers) to conform to the above-mentioned mining activities.	Compliant. The financial provision was updated in May 2019 and adjusted accordingly.	Financial Provision Reports, May 2019	3	3	No recommendations.	-
8	Any alteration or deviation from the environmental Management Programme must be reported to the Regional Manager for his approval or consideration.	The Environmental Audits are submitted to the DMR annually. The Environmental Audits detail each of the conditions and the compliance to these.	Proof of submission 16 January 2019.	3	3	No recommendations.	-
9	The approved Environmental Management Programme that is attached is for implementation and compliance to the conditions stipulated therein.	Please refer to the assessment of the EMP presented herewith.	-	T/N	T/N	No recommendations.	-
10	Note that a copy of the approved Environmental Management Programme must always be available on the mine premises for inspection by duly authorised officers.	Compliant. A copy is kept at the Environmental Department (Mr Dirk Coetzee).	Site observations.	3	3	No recommendations.	-
11	The Environmental Management Programme must be updated on a regular basis with regard to the actual progress of the establishment of surface infrastructure, mining operations and rehabilitation.	The EMP for the expansion of the Mine Residue Deposits was approved during 2016. The Mine is currently in the process of assessing the possibility of updating the EMP to include other potential mine expansions. This EIA Process Company appointment is still in Tender Phase.	Site observations.	3	3	It is recommended that the Mine updates the existing EMP with the incorporation of the following: combination of all EMPs, Offset Area study, IWUL findings, Integrated Water and Waste Management Plan (IWWMP), updated Groundwater Model and the Annual Rehabilitation Plans.	SHEQ Department
12	No Mine waste will be allowed to be deposited in a natural drainage lines, erosion gullies and or dongas, unless agreed thereto in writing with the Regional Manager.	The Licence Holder is aware of this condition. Spills from the Plant are placed in borrow pit areas to the south of the Plant – according to the client, this is regarded as product to be sold. This area is however not demarcated for such purpose.	Site observations.	0	3	Material may only be stockpiled on approved footprints. Any new stockpile areas must receive the necessary environmental authorisations.	SHEQ Department



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13	Monitoring must be conducted on a continuous basis in line with regulation 55.	Annual audits have been undertaken on compliance with the EMP.	Proof of submission 16 January 2019.	3	3	The Environmental Audit Reports should be submitted to the DMR within 30 days of finalisation.	-
14	Performance assessment report as contemplated in regulation 55(1)(c) must be submitted annually (from the date on which the right was granted) to the Regional Manager: Mineral Development.	Annual audits have been undertaken on compliance with the EMP.	Proof of submission 16 January 2019.	3	3	The Environmental Audit Reports should be submitted to the DMR within 30 days of finalisation.	-
Compliance Rating				26	29	89,66%	



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Table 7: Mine EMPr ECA (12 June 2006)

Number/Description	Requirement	Observation	Source Document / Observation	Rate	Target Rate	Recommendation	Responsible person
Environmental Conservation Act, 1998 (Permit NNO25/198 - NC/SIY1/04) - June 2006							
General Conditions							
1	This authorisation is granted only in terms of Section 22(3) of the Environment Conservation Act, 1989 (Act No 73 of 1989) and does not exempt the holder thereof from compliance with any other legislation.	<p>The Licence Holder is aware of this condition. The Mine is operating in terms of an approved WUL, WML and various Environmental Authorisations.</p> <p>Certain areas must be addressed in the WULA and future EMP Amendment, which include:</p> <ul style="list-style-type: none"> * The stockpiles are being constructed in terms of the approved designs and footprint areas as per the EMP, with the exception of the KM02 WRD at King, which has encroached beyond the footprint to the eastern portion of the site - although in areas indicated by past maps as disturbed. <p>Detailed water studies have been undertaken to optimise water management on site, and have been included into the current WUL Amendment. Various water use amendments will be applied for which will include:</p> <ul style="list-style-type: none"> * WRD J, which has commenced with construction - under the 2016 issued Environmental Authorisation, but has not been approved in the WUL as the 2016 WULA was withdrawn on request by the DWS during meeting with the Licence Holder, as this 2016 WULA is now included into the overall WULA for 2019. * The KM02 WRD design footprint has altered due to the active mining activities in this area and will have to be adjusted in terms of the WULA. * Various STPs are present on site which are to be included into the WULA. * Various tanks are present on site, which includes the Sedibeng Tanks, which have not in the past been included into the WULs. * A Section 21(j) water use is in place for dewatering for safe mining conditions at both King and Bruce - this use will likely commence in 2024 and must be linked to an actual use, such as a Section 21(a). 	<p><u>NEMWA:</u> § Permit 12/9/11/L812/8 for the Landfill Site and Hazardous Storage Facility.</p> <p><u>NWA:</u> § WUL Licence: 10/D41J/BC1J/2122 for the 2013 WUL.</p> <p><u>NEMA (and ECA):</u> § Permit 43/2006 for the development of an iron ore opencast mine with all associated infrastructure; § Permit 47/2009 for the Railway Line Diversion and Local Siding Establishment; § Permit 37/2012 for the expansion of diesel storage and a silo for explosives, construction of a tar road and additional refuelling station, storm water dams and storage tanks; § Permit 56/2013 for the Off-Grade 2 Plant; § Permit 21/2016 for the construction of the WHIMS Plant at Parson, the Expansion of the Parson Discard Dump, Bruce Low-Grade ROM Stockpile and King/Mokaning Low-Grade ROM Stockpile, and the establishment of additional Low-Grade Stockpiles at King; § NC30/5/1/2/3/2/1(070)EM for the WHIMS Plant and silo project, 2018.</p>	2	2	The areas which requires amendment, should be incorporated into the current WULA and future planned Environmental Authorisation Process scheduled for early 2020.	SHEQ Department



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			<p><u>MPRDA</u> § MPRDA ROD 2007 for the new Mining Operation and associated EMP dated February 2006; § MPRDA RODs – undated 2007 (document date of modification states August 2007) for the Barrier Pillar and associated EMP dated April 2007 (this EMP resulted in a change to certain commitments by the Mine since the original EMP); § MPRDA ROD 2011 for the additional infrastructure such the local siding in line with Permit 47/2009; § MPRDA ROD 2012 for the additional infrastructure such as the diesel storage in line with Permit 37/2012.</p>				
2	This authorisation refers only to the project as specified and described in the scoping report dated February 2003. Any other activity listed under Section 21 of the Environment Conservation Act, 1989 (Act No 73 of 1989) which is not specified above, is not covered by this authorisation and separate application will have to be launched and must therefore comply with the requirements of the Environment Conservation Act 1989 (Act No 73 of 1989) and Government Notice No. R. 1183 of 5 September 1997 and its amendments.	The Licence Holder is aware of this condition. This assessment is only done on the activities associated with this authorisation and therefore does not refer to the Waste Management Licence, Off-Grade 2 Plant or the Load-Out Facility. The following activities have been initiated which should receive approval in terms of an Environmental Authorisation: * KMO2 WRD design footprint has encroached beyond its footprint as presented in the original EMP and has altered due to the active mining activities in this area and will have to be adjusted in terms of the pending WULA.	Site observations.	0	3	The areas which requires amendment, should be incorporated into the current WULA and future planned Environmental Authorisation Process scheduled for early 2020.	SHEQ Department
3	This authorisation is subject to the approval by the relevant local authorities i.e. in terms of any relevant legislation administered by those authorities.	The Licence Holder is aware of this condition. The Mine has approval in terms of the NEMA/ECA, NEMWA, MPRDA and NWA. No concerns in terms of approval by local authorities have	Site observations.	3	3	The Licence Holder should ensure that full knowledge is taken of the requirements of environmental legislation in the development and expansions of any mining or infrastructure requirements.	SHEQ Department



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		been observed. Sewage is treated on site, and general waste is disposed on site.				Water uses which should be included into the WULA must be addressed with the DWS.	
4	No development may take place on the area of concern without the necessary permits/approvals and/or service agreements, where it is relevant from or between the following authorities including, - National Department of Environmental affairs & Tourism - National Department of Agriculture - Department of Housing and Local Government - Department of Water Affairs and Forestry - Department of Mineral s& Energy - Department of Transport, Roads & Public Works - McGregor Museum - South African Heritage Resources Agency - Civil Aviation Authority : and - Any other relevant authority whether national, provincial or local	The Licence Holder is aware of this condition. The Mine has approval in terms of the NEMA, NEMWA, MPRDA and NWA. Please refer to the two findings above. The Mine has formalised an Offset Area as per the required Environmental Authorisation and is in the process of registration thereof. In addition to this the Mine has obtained tree removal permits for all clearance activities undertaken.	Site observations.	Dup	Dup	No further recommendation.	-
5	The applicant shall within 5 (five) days of receipt of this authorisation, provide all interested and affected parties identified during the public participation process with copies of this authorisation including all conditions attached thereto	No proof of whether this was undertaken could be obtained from site.	Site observations.	0	3	Proof of notification should be sourced and kept on site.	SHEQ Department
6	One-week written notice must be given to the Department before commencement with construction activities:	No proof of whether this was undertaken could be obtained from site.	Site observations.	0	3	Proof of notification should be sourced and kept on site.	SHEQ Department
6,1	Such notice shall make clear reference to the site location details and the reference number given below	No proof of whether this was undertaken could be obtained from site.	Site observations.	0	3	Proof of notification should be sourced and kept on site.	SHEQ Department
6,2	The notice must include proof of compliance with the following conditions described herein: i.e. conditions : 5 & 14	No proof of whether this was undertaken could be obtained from site.	Site observations.	0	3	Proof of notification should be sourced and kept on site.	SHEQ Department



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7	An Environmental Control Office (ECO) must be appointed to oversee the implementation of the EMP, and to ensure the implementation of mitigation measures, The ECO or his representative must visit the site at least once a week for the duration of the construction phase.	No construction activities are currently undertaken. GCS (Pty) Ltd (GCS) was appointed as the ECO during the construction period of the mine. The visits were schedule for once a month, the mine and engineering company (DRA) having appointed internal ECOs for the remainder of the time. Permanent Environmental Officers are appointed for the King, Bruce and Parson Sites.	Site observations.	3	3	No further recommendations.	-
8	Environmental Control Officer must ensure that changes in the project resulting in significant environmental impacts and that differ from what was authorised by the Department must be submitted to this Department approval prior to such changes being affected.	No construction activities are currently undertaken.	-	N/A	N/A	No further recommendations.	-
9	The applicant must notify this Department in writing within 24 hours thereof if conditions of the authorisation are not complied with.	This condition is not practical to implement. There are various conditions which will not at all times be compliant, in terms of specific operational measures - waste management, hydrocarbon management. It will not be practical to notify the DMR of such issues.	Site observations.	TBA	TBA	It is recommended that this condition be removed from the ROD and rather be replace with a condition station: The Licence Holder must within 24 hours , notify the Competent Authority of the occurrence or detection of any incident on the Site, incidental to the operation of the site, which has the potential to cause, or has caused legal non-compliance, pollution of the environment, health risks nuisance conditions or water pollution.This is regarded as a Regulation 34 Amendment, which could be incorporated into the overall EIA Process scheduled for early 2020.	SHEQ Department
10	The Department must be notified of any changes of address of the applicant	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	Comment is Noted.	-
11	The Environmental Management Plan (EMP) for construction and management of activities relating to the protection of the natural environment during the construction phase and must be adhered to at all times unless stated differently in this ROD.	No construction activities are currently undertaken.	Site observations.	NLR	NLR	No further recommendations.	-
12	The conditions of the authorisation should be brought to the attention of all persons (employee's sub-consultants, etc.) associated with the undertaking of this activity and the applicant should	Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills. The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers	Site observations.	3	3	No recommendations.	-



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	take such measures necessary to bind such persons to these conditions.	responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness. Based on the findings observed on site, specifically relating to water management, it is clear that the mine is aware of the requirements of water conservation and management, and that ongoing actions are raised and activities implemented, such as the current upgrades in terms of the water containment facilities and channels on site.					
13	A copy of the authorisation shall be available on-site during construction. The applicable conditions of this authorisation must form part of all contractors and sub-contractors' conditions of the contract.	No construction activities are currently undertaken.	N/A	N/A	N/A	No further recommendations.	-
14	This applicant must apply the principle of best practicable environmental option for all technologies used/implemented during construction.	No construction activities are currently undertaken.	N/A	N/A	N/A	No further recommendations.	-
15	No plants must be removed other than required for the layout of the site. However, if affected plant(s) is endangered or protected, permission must be sought from Northern Cape Department of Tourism, Environment & Conservation for the removal thereof.	Compliant, tree removal permits were obtained for all areas of clearance. These are available from the Environmental Superintendent.	Tree Removal Permit 0012/2017. Licence: NCU 7971117	3	3	No recommendations.	SHEQ Department
16	All forms of pollution must be prevented or where it cannot should be minimised or remedied.	A Waste Management Procedure is in place on site. In general, the content of the procedure is what has been communicated to the auditors on site. Various areas for improvement were observed in terms of the type of bins, colouring and labelling consistency. No reportable incident has been recorded on site in terms of the site interviews. No major spills have taken place, however ongoing spills have been present in areas such as the Load-Out Benetec System and the STPs.	Site observations.	0	3	Incident reporting in terms of Environmental Incidents require revision to ensure that the required reporting is undertaken. The upgrade of the system to send excess water to the proposed area behind the Load-Out Workshop should be implemented urgently. The area around the Benetec System	SHEQ Department



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		<p>Based on site observations, an incident was observed at the Benetec Plant at the Load-Out Facility during 2017, which has not been addressed and was still present during the 2019 audit. The facility has been overflowing for an extended time (beyond the bund wall), with a well-established 'swamp' system with aquatic life already present. The water from this system should be used for dust suppression on the conveyor systems, but based on 2017/2018 on-site interviews, the product received from the Plant is already too wet and additional water cannot be added without compromising the product. The facility received water from the treated sewage water. No water quality data is currently available to determine the nature of the water which has spilled beyond the bunded areas. The SHEQ Department was not informed of this incident during the previous audit, and for the current audit, was not aware of the status quo.</p> <p>According to site interviews, upgrades are planned to reroute sewage water to the Jo tanks behind Load-Out Workshop, which will reduce the volume off water send to the Benetec system.</p> <p>The STPs on site are presenting concerns in terms of dirty water management and discharges:</p> <ul style="list-style-type: none"> * At the Bruce STP, a spill is present outside a manhole of the facility with an odour present in this area. Discharge of the treated water takes place through a pipe into a channel to Bruce PCD. This channel is constructed with bricks which is effective for erosion management at the discharge point, but will likely not limit seepage. A poor odour is also present at the channel where the treated sewage discharges, raising concerns in terms of the water quality. * At the King STP at the Workshop, discharge into environment downgradient of the STP was observed with a marshy area created. The treated water should report to the Crusher PCD. In addition to this, the green JoJo tank within the Plant indicates leakage. * At the King Crusher PCD STP, the sump (drying beds) is almost full. The water sump is also very full with the overall system indication a lack of maintenance and inspections. Discharge of treated water was visible from the system into the open environment. This water should report to the Crusher PCD but is discharged via pipe prior to reaching the dam. A poor odour present in this area, raising concerns in 				<p>should be remediated.</p> <p>The discharges of the STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these should be actioned for clean-up or maintenance.</p> <p>It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.</p> <p>It is recommended that hazardous waste skips on site be equipped with lids and be used in accordance with its purpose.</p>	



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		<p>terms of the water quality. The filter box into the sump indicates that it is blocked, with spills present.</p> <p>Water quality results are available to confirm the effectiveness of the STP treatment process. According to the report, Faecal Coliforms are present at the Parson STP, the Parson STP HOD (although this was absent for June and July 2019), the Parson STP HPGR Workshop, Parson Scrap Yard, Bruce STP, Load-Out STP, and at both King STPs According to the DWS Guidelines for domestic drinking water) - a count of more than 20 counts /100ml can cause a significant and increasing risk of infectious disease transmissions. Even when considering the guidelines for irrigation the target water quality is 1 count /100ml; above this there is a likelihood of contamination of crops and pastures and water treatment is required.</p> <p>In terms of the implementation of waste management procedures the following observations were made relating to waste management:</p> <ul style="list-style-type: none"> * At the King Laydown area, littering is present. Dustbins are provided but not in use. * At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently banded. * At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed. * At the King Loading Equipment Workshop, hazardous skips are present, not contained on banded or concreted area and have no roof or covering. * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained. * At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not banded. Hazardous bins are places on an unlined area. Some drums are stored outside banded areas. * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing 					



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		<p>present, are not in a contained area and have no lids present.</p> <ul style="list-style-type: none"> * At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted. * At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills. * At the TMM Workshop at Bruce, hazardous skips are present with no lids. * At the Transnet Workshop, the hazardous waste bin filled with domestic waste. * At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing. * Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints. * At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included: <ul style="list-style-type: none"> * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed). 					
17	Records relating to the compliance / non-compliance with the conditions of the authorisation must be kept in good order. Such records must be made available to the Department within 7 (seven) days of receipt of a written request by the Department for such	All records are being kept on the IsoMetrix system.	Site observations.	3	3	No further recommendations.	-



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	records and also included in the Environmental Audit Report.						
18	Any complaints regarding the said development must be brought to the attention of the Department within 24 working hours after receiving the complaint. A complaints register must be kept up to date for inspection by the Department.	Noted, the Licence Holder is aware of this condition. No complaints regarding the development were received, as well as no appeals received. To date no complaints in terms of significant environmental concerns have been reached. Queries in terms of erection of fences and details on vibration studies have been received and are then resolved between the mine and landowners.	Farmers meeting, January 2019.	3	3	No further recommendations.	-
19	This Department may add to, change and /or amend any of the conditions in this authorisation if in the opinion of the Department , the addition change of amendment is environmentally justified. In event that such impacts exceed its significance as predicted in the independent consultants environmental scoping report and supporting documentation , the authorisation may be withdrawn after proper procedures were followed.	The Licence Holder is aware of this condition.	-	T/N	T/N	No further recommendations.	-
20	In the event of any of any dispute concerning the significance of a particular impact the opinion of this developer . Conditions imposed in this ROD must be made known to the new owner and / or developer and are binding on the new owner and /or developer.	The Licence Holder is aware of this condition.	-	T/N	T/N	No further recommendations.	-
21	The Department must be notified within 30 days thereof of any change of ownership and or project developer. Conditions imposed in this Rod must be made known to the new owner and/or developer and are binding on the new owner and/or developer.	The Licence Holder is aware of this condition.	-	T/N	T/N	No further recommendations.	-
22	In the event of sharing the Conditions imposed in this ROD must be made known to the sharing party. All conditions in this ROD are binding on the sharing party. The applicant is responsible to ensure that all these conditions are complied with.	The Licence Holder is aware of this condition. No sharing of conditions are undertaken at this time.	-	T/N	T/N	No further recommendations.	-
23	If the applicant is not the landowner the Department must be supplied with an approval from the landowner giving	The Licence Holder is aware of this condition. The Licence Holder is the landowner.	-	T/N	T/N	No further recommendations.	-



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	consent for the applicant to proceed with the project, before construction/ upgrading takes place.						
24	The applicant must take reasonable measures to suppress dust.	<p>PM10 monitoring stations are also present on site.</p> <p>During the site audit, an indication of potential concerns in terms of dust dispersion based on visual observations were noted, which is regarded a non-compliance in terms of the interpretation of this condition. Most roads are treated with a dust suppressant, other roads are wet suppressed. Blasting and material transfer present short term dust pollution, especially during cloudy conditions.</p> <p>Detailed dust monitoring protocol is in place. Gondwana, a SANAS Accredited Testing Laboratory was in the past responsible for monitoring; currently the Mine is undertaking dust monitoring internally. According to the National Dust Regulations No. R. 827 of 1 November 2013 the permitted frequency of exceeding dust fall rate in non-residential areas should not exceed two within a year, not sequential months. The data provided by the Mine indicate that the majority of sites are in line with the standards, with the exception of BKM17, which is located in the Plant area.</p> <p>When there is exceedance in terms of the regulatory standards, this is reported onto IsoMetrix.</p>	<p>Gondwana Reports, January 2018-December 2018.</p> <p>Soil Analysis Report, March 2018</p>	3	3	It is recommended that the dust monitoring results are presented in graphs to present visual trends.	SHEQ Department
Special Conditions							
1	All mitigation measures and recommendations as laid down in the Environmental Impact Assessment and Environmental Management Plan submitted in terms of Mineral and Petroleum Resources Development Act No.28 of 2002 (DME Ref No. NC30/5/1/2/3/2/1/070) and Scoping Report by Ms Tanja Thorius (IVUZI) dated December 2005 (including proposed amendments) are binding and must be implemented, unless stated differently in this ROD	Please refer to the assessment of the EMP presented herewith.	-	T/N	T/N	No further recommendations.	-
2	No activity must take place within 50m of the pans and other sensitive areas	A pan in terms of the developed DWS National Freshwater Ecosystem Protection Areas (2010) is located north-east of the Bruce Low-Grade ROM Stockpile. This pan was not regarded as sensitive in the studies undertaken by GCS for the 2016 EIA process. This pan has been covered by the	2016 EIA: Ref - NC/EIA/11/JTG/GAM/KAT2 /2014, 06 July 2016	1	3	The Section 21c&i water uses must be applied for disturbance to any pan.	SHEQ Department



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		WRD. Another set of pans are located to the south of the Discard Dump on Parson, this facility too is being expanded and is currently in the process a WUL amendment.					
3	An environmental management plan and environmental impact assessment must be amended to incorporate specialist studies on fauna, flora and archaeological investigations and identify impact and develop mitigation measures before the end of July 2006. An environmental management plan for the offset area shall be compiled in consultation with SANPARKS, WESSA and other interested and affected parties and shall be completed before the end of November 2003 and must be approved by this Department.	The Offset Area has been established and the Mine is currently in the process of registration thereof. A biodiversity action plan has been compiled, but not yet submitted to the NCDENC for approval.	Biodiversity Management Plan, Draft, November 2017	1	3	The Biodiversity Management Plan should be submitted to the NCDENC for approval.	SHEQ Department
4	Informal settlement must be strictly prohibited.	No informal settlements are present in and around the area.	Site observations.	3	3	No further recommendations.	-
5	Fuel and other petrochemicals must be stored in receptacles that comply with SANS100-1:2003 (SABS 089-1:2003) standards.	Overall the main diesel and chemical storage areas are well maintained. These sites are maintained by Competent parties – Engen.	Site observations.	3	3	No further recommendations.	-
6	Contaminated soil must be removed for bioremediation or disposed of at licensed facility for the substance concerned. And the disturbed land must be rehabilitated and seeded with vegetation naturally occurring on the site.	Contaminated soil is removed from site by Licensed companies, currently InterWaste. In terms of seeding, the Barrier Pillar EMP of 2008 replaced the need for seeding and rather stated that self-succession should first be allowed.	Barrier Pillar EMP, 2008	TBA	TBA	It is recommended that this condition be amended as part of Regulation 34 to remove the immediate need for seeding and first allow for self-succession.	SHEQ Department
7	Specific area must be demarcated for fuelling and workshop services. And such area must be bunded to reduce possibility of soil and water contamination.	Projects are currently in place to surface larger areas at the Workshops. Maintenance areas have been increased. The following observations were made during the site visit: * At the King Refuelling Bay, oil spills are present outside of the bunded areas and a fuel spill is present at the pump area in the fourth sump and this is not contained. In addition to this, the sump between the area 1 and 2 filling pump indicates overflow. * At the Loading Equipment Workshop, diesel drums are stored outside of bunded areas. Hazardous skips are present, but not contained on bunded or concreted areas and with no roof or covering. * At the Bulk Diesel Storage area at King, hydrocarbons are present around the hazardous waste skip indicating a leaking skip; this skip is not covered or contained.	Site observations.	0	3	Containment measures must be implemented at all areas where diesels are stored. It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.	SHEQ Department



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		<p>* At the King Salvage area, diesel drums are stored, but not contained but on a surfaced area and with no bund present.</p> <p>* At the Bruce Salvage Yard, the hydrocarbon and battery storage areas is located on a surfaced area but not banded. Hazardous bins are also placed on an unlined area.</p> <p>* At the Bruce Bulk Diesel Bay, hazardous skips are present at the parking area, has waste mixing present, are not in a contained area and have no lids present. The hazardous bund skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure takes place. The oil separator indicates spills on the brick paving. During the summer, the oil separator pumps sometimes fail and overflow – proof of this was visually present on site. This was reported to the Mine to fix based on the on-site inspections.</p> <p>* At the Bruce Workshop, spills are currently present around the contaminated soil buckets. Castrol drums are stored in uncontained areas; these are full. In this area there is a large presence of grease and oils spills.</p> <p>* At the Load-Out Transnet Workshop, some spills around the Drizit system are not contained.</p>					
8	Storm water drainage must be designed in a way that clean water does not mix with dirty water.	<p>During the site visit the following was observed in terms of findings relating to poor water management:</p> <p>* The intention of the Storm Water Dams is to be operated as empty - i.e. water circulation is to be implemented. Pumps are in place at the Bruce and Parson Storm Water Dams, but the reuse and circulation are not optimised and water volumes beyond the concrete sumps are present, and therefore such water is not contained and will seep into subsurface. Designs have been finalised to allow for improved water circulation and infrastructure in these areas to optimise water return.</p> <p>* A major incident was observed at the Benetec Plant at the Load-Out facility. The facility has been overflowing for an extended time (beyond the bund wall), with a well-established 'swamp' system with aquatic life already present. The water from this system should be used for dust suppression on the conveyor systems, but based on 2017/2018 on-site interviews, the product received from the Plant is already too wet and additional water cannot be added without compromising the product. The facility received water from the treated sewage water. No water quality data is currently available to determine the nature of the water which has spilled beyond the banded areas.</p> <p>* Concerns in terms of operating procedures at the wash</p>	Site observations.	0	3	<p>The designs and water circulation of the wash bays, as well as the Benetec Plant Tank at the Load-Out Facility should be investigated where ongoing concerns are raised.</p> <p>Operational procedures for maintenance and inspections on site at the STP, wash bays and receiving tanks for treated water should be implemented.</p>	Engineering Department



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		<p>bays at both the King and Bruce workshops were present. The facilities presented incomplete infrastructure (i.e. pumps uncoupled). Based on the on-site observations, clean water is now used in the washing processes, with water accumulating in the wash bays. The layout of the facilities also indicated that settling of suspended solids is not optimised, with water being pumped into the incorrect compartments (King Wash Bays). Both wash bays were full which indicated capacity constraints. Silt from the wash bays, observed at the Bruce area specifically, is stored uncontained next to the wash bay areas. Removal practices and procedures are not in place. The area is not designed to dry or store this material. Based on past waste classification projects undertaken at Khumani this is a Type 3 hazardous waste and should be stored accordingly. Classification of this waste is currently underway.</p> <p>* At the King Wash Bay at the Oil sump, the skimmer was located outside of the sump area – the operational status of this wash bay is questioned and could not be confirmed. The first sump was very silted. The second sump also indicated oils and during the site inspection a water truck stopped to fill up from this sump – this was stopped by the Environmental Officer. Both sumps/ pond skips indicate mixing of water and are not operated as an oil separation system.</p> <p>* At the Bruce Wash Bay, the piping system indicated that the wash bay system receives clean water from the Sedibeng Pipeline Scheme, which is not good practice in terms of water demand and conservation management.</p> <p>* At the King Water Filling Point, spills from the water filling point were observed during the site visit, which are creating an erosion gully. Water losses are experienced in this area as it is uncontained. According to the interviews and clarification provided by the site personnel, the run-off from the water refilling point is flowing into a section next to Paste Disposal Facility compartment 3A. According to Leonard Gregan from SSMS, this area is going to form part of proposed Return Water Dam #3 (note based on latest discussions on site, is likely that Return Water Dam 3 will not be constructed in the short to medium term).</p> <p>* At the King Drilling and Ancillary Workshop, pressure washing practices in the Workshop results in water running of into uncontained areas. Plans are however in place to include trenches in the design, with the presence of construction activities for trenches observed during the site visit.</p>					



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		<p>* At the New Stockpile PCD at King, water bypasses the dam towards the conveyor road crossing. This facility is not effectively maintained to serve the purpose of capturing dirty water runoff as there is no formal drainage into this dam.</p> <p>However when considering the requirement of the WUL, the Mine has undertaken various studies and are in the process of implementing these to optimise water management:</p> <p>* The Mine has appointed SLR to assess the operational water balance and to develop a WCDMP.</p> <p>* In addition to this, the Mine has appointed Geo Tail to assess the overall storm water management plan of the site and undertake the required updates. These studies have informed the current WULA Amendment process.</p> <p>Various water optimisation projects are currently underway, which include: Pipeline from Parson Plant SWD to the Beneficiation Plant; potential new Return Water Dam at the Paste Disposal Facility (subject to Environmental and Water Use Approval); potential new Braithwaite tanks at King to optimise water storage in closed containers; more effective storage of water for dry periods in Buffer Dams with potential evaporation measures; and lastly the lining of channels in the Plant area, which have received great emphasis and was observed on site.</p>					
9	Chemical toilets must be made available for workers on site during construction phase and sewerage waste must be disposed the Municipal sewerage plant on a weekly basis.	No construction activities are currently undertaken. Contractors are present on-site servicing conveyor area, etc. These sites are serviced by chemical toilets and removed by licensed companies.	Site interviews.	3	3	No further recommendations.	-
10	Employees must be supplied with earplugs to reduce impact of noise.	Compliant.	-	3	3	No further recommendations.	-
11	General waste must be collected in containers and disposed of weekly at a licensed landfill site and recyclable waste may be recovered for recycling purposes. No temporary dumping is allowed on site.	Waste management is implemented on site. The Mine has an approved general waste Landfill Site. The mixing of wastes still take place. The Salvage Yard is very well equipped to sort wastes into the correct categories.	Site observations.	3	3	Ongoing improvement of waste management practices should be investigated and implemented.	SHEQ Department
12	Should any archaeological artefacts, graves or protected and endangered biota be found on site the operation must be suspended and construction should only continue after consultation with South African Heritage Resources	The Licence Holder is aware of this condition.	-	T/N	T/N	No further recommendations.	-



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	Agency (SAHRA) and the necessary procedure are followed as prescribed by SAHRA.						
13	Untreated sewage water must not be discharged directly into the natural environment.	<p>The STPs on site are presenting concerns in terms of dirty water management and discharges:</p> <p>* At the Bruce STP, a spill is present outside a manhole of the facility with an odour present in this area. Discharge of the treated water takes place through a pipe into a channel to Bruce PCD. This channel is constructed with bricks which is effective for erosion management at the discharge point but will likely not limit seepage. A poor odour is also present at the channel where the treated sewage discharges, raising concerns in terms of the water quality.</p> <p>* At the King STP at the Workshop, discharge into environment downgradient of the STP was observed with a marshy area created. The treated water should report to the Crusher PCD. In addition to this, the green JoJo tank within the Plant indicates leakage.</p> <p>* At the King Crusher PCD STP, the sump (drying beds) is almost full. The water sump is also very full with the overall system indication a lack of maintenance and inspections. Discharge of treated water was visible from the system into the open environment. This water should report to the Crusher PCD but is discharged via pipe prior to reaching the dam. A poor odour present in this area, raising concerns in terms of the water quality. The filter box into the sump indicates that it is blocked, with spills present.</p> <p>Water quality results are available to confirm the effectiveness of the STP treatment process. According to the report, Faecal Coliforms are present at the Parson STP, the Parson STP HOD (although this was absent for June and July 2019), the Parson STP HPGR Workshop, Parson Scrap Yard, Bruce STP, Load-Out STP, and at both King STPs According to the DWS Guidelines for domestic drinking water) - a count of more than 20 counts /100ml can cause a significant and increasing risk of infectious disease transmissions. Even when considering the guidelines for irrigation the target water quality is 1 count /100ml; above this there is a likelihood of contamination of crops and pastures and water treatment is required.</p>	<p>Site observations.</p> <p>Monitoring Results up until June 2019.</p>	0	3	<p>The discharges of the STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these should be actioned for clean-up or maintenance.</p> <p>It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.</p> <p>It is recommended that hazardous waste skips on site be equipped with lids and be used in accordance with its purpose.</p>	Engineering Department
14	Movement of construction vehicles must be avoided on sensitive areas.	The Licence Holder is aware of this condition.	-	T/N	T/N	No further recommendations.	-
15	It recommended that local people must be employed.	Compliant, where practically possible.	-	3	3	No further recommendations.	-



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16	Employees must not be housed on site during both construction and operation phases.	No people are housed on site.	-	3	3	No further recommendations.	-
17	Relevant Occupational Health & Safety Standards shall be observed at all times.	No areas of concern were observed during the site visit.	-	3	3	No further recommendations.	-
18	The contractor shall leave the construction site free from erosion, silting, pollution and/ or unwanted material.	No contractor areas with erosion concern were observed during the site visit.	-	3	3	No further recommendations.	-
19	In the event of an accidental spill the total spillage must be cleaned, and the area must be rehabilitated to the satisfaction of the Department of Tourism , Environment and Conservation and the Department of Water Affairs and Forestry.	The Licence Holder is aware of this condition. Operational spills are present on site, due to facility maintenance. These areas have been addressed in prior findings (Benetec System and the various spills around the Sewage Treatment Plants). Accidental spills – such as truck spills or once off have not been observed.	-	T/N	T/N	No further recommendations.	-
20	The applicant must include ground water monitoring programme as part of the environmental management plan.	Compliant, a Groundwater Monitoring Plan is in place.	Site observations.	3	3	No further recommendations.	-
21	All mitigation measures and recommendations as laid down by the Department of Water Affairs and Forestry on the comments dated 20 April 2006 must be adhered to at all times.	The Licence Holder is aware of this condition. The Licence Holder is currently updating the WUL in consultation with the DWS. Audits are annually undertaken based on the issued WUL, issued by the DWS, which addresses this finding.	Site observations.	T/N	T/N	No further recommendations.	-
22	Lighting technology that provide sufficient light where required while preventing light, spillage elsewhere must be made available and must be installed in the lighting entrances, roads and squares where required. Spotlight and lighting of areas outside the mining boundaries must be avoided.	No areas of concern were observed during the site visit.	Site observations.	3	3	No further recommendations.	-
23	Surface water runoff re-directors along major wash off zones must be constructed.	A detailed Storm Water Management Plan is in place on site.	Site observations.	3	3	No further recommendations.	-
24	The stockpiling of the installation materials should as far as possible be confined to a dedicated site and the excess materials thereof must be limited to the disturbed areas.	No areas of concern were observed during the site visit.	Site observations.	3	3	No further recommendations.	-
25	Open fire is strictly prohibited on site. Firebreaks should be established in	Compliant. This forms part of the induction training as well.	Site observations.	3	3	No further recommendations.	-



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	terms of the requirements and conditions of the National Veld and Forest Fires Act , 1998 (Act No 101 of 1998) to prevent uncontrolled burning and destruction of habitats and special attention must be paid to the offset and mining areas.						
26	Erosion must be controlled as specified in the Conservation of Agricultural Resources Act 1983 (Act No.43 of 1983) and be mitigated accordance to the approved EMP.	<p>Reno mattresses have been implemented around the TFR Diversion to retain stability of the runoff.</p> <p>At the ramp to the King Crusher, erosion gulleys were observed on the inner slope. From site interviews, it was stated that vegetation at the crusher areas are kept limited to prevent fire and snake hazards; this does however, constrain the stability of steep slopes, resulting in erosion.</p> <p>At the King Crusher Dam various concerns were observed relating to the design of the facility, specifically the channelling of water into the dam. No defined channel has been designed to channel water into the settling sump of the Crusher Dam, resulting in various erosion gulleys leading to uncontrolled water entering the dam and storm water not entering the dam as required.</p> <p>In general, the site was in good state, with little presence of erosion. There were however areas of concern in terms of erosion as a result of runoff, due to vegetation clearance or lack of vegetation establishment at the following areas: * Spills from the water filling point at King was observed during the site visit, and is creating an erosion gulley, which will impact on water runoff in this area. * Erosion was noted at the north-eastern corner of the New Stockpile PCD and the stability of the wall is questionable. This is due to informal (unplanned) water runoff into this system. * Erosion gulleys were noted at the sediment trap exit at the Load-out PCD due to previous rain – this has not been fixed.</p>	Site observations.	1	3	Erosion control measures should be implemented at areas where erosion is prone due to the presence of storm water runoff.	SHEQ Department
27	The applicant must ensure that contractors , mine employees and any other personnel involved in this project understand and comply with the conditions of this record of decision and the environmental management plan. It is the applicant's responsibility to ensure that the employee's	<p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites;</p>	Site observations.	Dup	Dup	No recommendations.	-



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	contractors and subcontractors receive the necessary environmental training to deal with fire emergency issues and comply with this record of decision effectively from the date of issue of this ROD.	<p>* One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs));</p> <p>* Environmental Forum Meetings held every 6 months; and</p> <p>* Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p> <p>Based on the findings observed on site, specifically relating to water management, it is clear that the mine is aware of the requirements of water conservation and management, and that ongoing actions are raised and activities implemented, such as the current upgrades in terms of the water containment facilities and channels on site.</p>					
28	All power lines telephone lines and farm reservoir shall be made raptor-friendly by the 23 June 2006. New overhead lone before the end of June 2006.	Compliant.	Site observations.	3	3	No further recommendations.	-
29	The offset area of similar size, habitat and biodiversity to the area to be disturbed by the proposed Khumani Iron Ore Mine must be established and must be used for the relocation of fauna and flora (threatened or endemic species). An offset area in consultation with this Department Wildlife and Environment Society of SA (WESSA) , I7AP's and NGO's must be established before the end of November 2006	The Offset Area has now been acquired and a Biodiversity Management Plan is in the process of being finalised.	Site observations.	3	3	The Biodiversity Management Plan should be finalised as soon as possible to allow for the implementation of recommended measures.	SHEQ Department
30	It is recommended that threatened or protected species should not be destroyed even if there is need for their removal and it must be relocated to an appropriate site or offset area of similar biodiversity. Fauna and flora (including protected or endemic species) relocation or destruction must only be done if there is authorisation	Tree removal and protected species permits have been obtained for all areas where clearance is required.	Tree Removal Permit 0012/2017. Licence: NCU 7971117	3	3	No recommendations.	SHEQ Department



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	by Department of Water affairs and Forestry and the nature conservation directorate of the Department of Tourism, Environment and Conservation. Ongoing sweeps shall be taken of areas where relocation has been undertaken prior to construction.						
31	Invader species must be controlled, and such control should be linked on categorisation of the invader species immediately and throughout the life of the mine.	<p>Weed eradication is currently being undertaken as an "as required" process.</p> <p>During the site visit weeds were observed throughout the areas visited.</p>	Site observations.	0	3	<p>The Weed Eradication Schedule being developed by the Mine should be finalised and implemented.</p> <p>The Licence Holder should manage livestock grazing within the mining area so to ensure that overgrazing does not occur.</p> <p>In the area in the vicinity of Vegetation Monitoring Point 1 specifically, the removal of the alien species, with special mention of <i>Cirsium vulgare</i> and <i>Argemone ochroleuca</i>, must take place in order to comply with existing legislation (NEMBA Alien and Invasive Species Regulations, GN R598 of 2014). <i>Laggera decurrens</i>, an annual weed, must also be controlled. These species must be removed from the Gamagara River.</p> <p>In the area in the vicinity of Vegetation Monitoring Point 3 specifically, the encroachment of <i>Senegalia mellifera</i> subsp. <i>detinens</i> and the resultant competition of this species with grasses and forbs causes a decrease in overall floral species diversity and a decrease in the overall grazing carrying capacity of the veld. The unnatural proliferation of <i>S. mellifera</i> subsp. <i>detinens</i> within the surface rights area in general must therefore be controlled. Advice must be sought from an experienced contractor in order to manage the proliferation of this species, particularly within areas to the northeast of Vegetation Monitoring Point 3.</p>	SHEQ Department



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						In general, the Licence Holder should continue to monitor the area in order to ensure that alien and invasive species do not encroach into the vegetation.	
32	The applicant must ensure that sterilisation or culling of domestic cats is undertaken to prevent interbreeding with wild cats on an ongoing basis.	Ongoing attempts in the sterilisation or culling of domestic cats should be undertaken. The Mine should further as part of toolbox talks inform employees not to feed cats on site. Various cats were observed on site.	Site observations.	1	3	Ongoing attempts in the sterilisation or culling of domestic cats should be undertaken. The Mine should further as part of toolbox talks inform employees not to feed cats on site.	SHEQ Department
33	On closure of the mine, grass or other plant species for rehabilitation must consist of endemic seed mix or endemic grass or plant species and investigation of the Impact of the final pit lakes on the groundwater levels shall be undertaken and potential impact on final post-closure hydrogeological regime should be quantified and the result should be forwarded to this department.	The Licence Holder is aware of this condition.	-	T/N	T/N	Comment is noted.	SHEQ Department
34	Commitments made through Ivuzi (Pty) Ltd and approved by WESSA on letter dated 9 June 2006 must be complied with and are binding (Ivuzi Reference: 1V.04.05.044)	The Offset Area has now been acquired and a Biodiversity Management Plan is in the process of being finalised.	Site observations.	3	3	The Biodiversity Management Plan should be submitted to the NCDENC.	SHEQ Department
35	There is the statutory 30 days appeal period in which no activities including site preparation may commence.	The mine has been constructed since 2006.	-	N/A	N/A	No recommendation.	-
36	Should the appeal against the Decision be received this record of decision is automatically suspended until the decision on the appeal process is made by the Member of Executive Council of this Department.	No appeals were received.	-	N/A	N/A	No recommendation.	-
Non-Compliance							
1	The applicant shall be responsible for all costs necessary to comply with the above conditions unless otherwise specified.	The Licence Holder is aware of this condition.	-	T/N	T/N	Comment is Noted.	SHEQ Department
2	It is the applicant's responsibility to ensure that contractors subcontractors and employees comply with duty of care as provided in section 28 of NEMA.	The Licence Holder is aware of this condition and for this reason undertaken regular inspections, internal audits and external audits.	-	T/N	T/N	Comment is Noted.	SHEQ Department



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3	Non-compliance with or any deviation of the conditions set out in this authorisation constitutes a failure in compliance with the authorisation. Such failure in compliance is regarded as an Offence and will be dealt with on terms of Section 29 , 30 and 31 of the Environment Conservation Act, 1989 (Act No 73 of 1989) as well as any other appropriate legal mechanisms.	The Licence Holder is aware of this condition.	-	T/N	T/N	It is recommended that more attention be given in the discussion points to the conditions of the environmental and water related permits, the importance thereof, and the legal obligations and risks associated with not adhering to these. Another area worth including, would be when environmental, water and/or waste applications are triggered and how these could be avoided.	SHEQ Department
4	If any condition imposed in terms of this authorisation is not being complied with the authorisation may be withdrawn after 30 days written notice to the applicant in terms of Section 22(4).	The Licence Holder is aware of this condition.	-	T/N	T/N	Comment is Noted.	SHEQ Department
5	National government provincial government local authorities or committees appointed in terms of the conditions of this application or any other public authority or organisation shall not be held responsible for any damage of losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of approval as set out in this document or any other subsequent document emanating from these conditions of approval.	The Licence Holder is aware of this condition.	-	T/N	T/N	Comment is Noted.	SHEQ Department
Compliance Rating				81	119	68%	



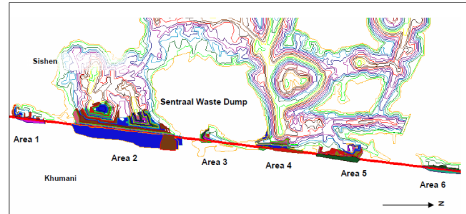
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Table 8: EMP Environmental Audit: Barrier Pillar EMP (April 2007)

Number/Description	Requirement	Observation	Source Document/Observation	Rate	Target Rate	Recommendation	Responsible person
NC 30/5/1/2/3/2/1/070EM (2008)							
EMP Requirements							
The removal of the underlying geology for the purpose of mining iron ore optimally.	Mining of the iron ore will remain within the limits of the proposed project application. The mine will ensure that, first and foremost, they optimally mine all iron ore within their existing mining rights area to limit the impact on green field areas.	<p>The extent of the barrier pillar mining areas must be reviewed in line with the approved EMP. The approved EMP states the following: Six (6) areas of potential feasibility have been identified to be mined within this Barrier Pillar. Three (3) of these areas (Areas 2, 4 and 5) are planned to be mined by Sishen and the remaining three (3) by Assmang (Areas 1, 3 and 6). Sishen wishes to start mining Area 2 during the middle of 2007 and continue to mine the remaining two (2) areas over a period of five (5) years. After this five (5) year period Assmang will start mining Areas 1, 3 and 6. The area will be mined layer by layer as the areas involved are small (the area on Khumani mining rights area only comprises of approximately 4ha). Sishen's waste will be deposited on the existing Sishen's dumps and Assmang's waste will be deposited on the approved Overburden and Low-grade Run of Mine (ROM) Stockpiles (which will also form part of reclaiming of low-grade iron ore in the near future)</p>  <p>Figure 2: Location of the proposed mining areas</p> <p>During the site visit an additional area being mined was observed; it was indicated that this formed part of the barrier pillar mining project. These areas, earmarked for opencast pits, have been indicated in the 2006 EMP as BC South Opencast Pit.</p>	Site Layouts Site Observations	3	3	No recommendations.	-
Altering of the topography (area of approximately 4ha) due to the expansion of the approved opencast mining operation.	The mine will undertake continuous backfilling as part of the mining operations. During operational activities, the opencast pits will be fenced off or planted with thorny indigenous vegetation and warning signs will be established to ensure safety.	<p>The Mine is still in the ramp-up period with opencast being established. Various opencast pits have been backfilled, which mainly include the smaller satellite pits (BC04). Other backfilling activities include: * The backfilling of Opencast Pit BC01 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan. The backfilling plan allows for a planned 15% backfill per annum over a</p>	Site observations.	3	3	Ongoing rehabilitation should be prioritised as far as possible. Records of backfill volumes should be kept on an internal recording system.	SHEQ & Mining Department



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		<p>period of 6-7 years;</p> <p>* Opencast Pit BC02 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC02 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan;</p> <p>* Opencast Pit BC03 has been backfilled. The final ripping, shaping and topsoil cover required to complete the rehabilitation of BC03 is scheduled to commence during 2019 and is therefore still included in the Annual Rehabilitation Plan; and</p> <p>* The enviro berm associated with Opencast Pit BA still requires completion of the remaining 40%.</p> <p>Volumes are being kept on site. Actual backfilling volumes for Opencast Pit B04 are available as Lenfield was responsible for the backfilling and was paid per quantity. In terms of Opencast Pits BC01, BC02 and BC03, volumes are recorded on MineStar (mine load and haul programme). The Environmental (SHEQ) Department is in the process of consolidating all this information to develop a track record for the volumes disposed.</p>					
The mining of the Barrier Pillar could impact on the existing mining operations in the area, both for the existing Sishen mining operation as well as for the planned Khumani mining operations.	The mine plan will be structure in such a way to ensure that no mining activities associated with the Barrier Pillar takes place within a 500m radius of planned or existing opencast operation activities. Where necessary the mining plan will be amended to accommodate the mining of the Barrier Pillar.	Compliant. Khumani and Sishen are successfully remining the barrier pillar with no incidents reported to the auditor.	Site observations.	3	3	No recommendations.	-
Loss of vegetation due to site clearing of the approximately 4ha associated with the expansion of the opencast pits.	The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites.	The Licence Holder is aware of this condition. To date, successful self-succession has occurred on rehabilitated areas. No rehabilitation has however been commenced on the barrier pillar as these activities are still operational.	Site observations.	T/N	T/N	No recommendations.	-
Topsoil will be placed on all areas where rehabilitation is undertaken.	The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites, which will replace the commitment of	The Licence Holder is aware of this condition. To date, successful self-succession has occurred on rehabilitated areas. No rehabilitation has however been commenced on the barrier pillar as these activities are still operational.	Site observations.	T/N	T/N	No recommendations.	-



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	utilising the provided seed mix within the approved EMP.						
Increased erosion on soils utilised for rehabilitation could occur without the necessary management measures in place.	The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites, which will replace the commitment of utilising the provided seed mix within the approved EMP. In addition the mine commits to assess and investigate the topsoil requirements for rehabilitation purposes and to ensure to utilise the available topsoil efficiently, which will replace the commitment within the approved EMP of the placement of 500mm topsoil over rehabilitated areas, as this will not be possible with the amount of topsoil available on site.	No areas of concern were observed around the barrier pillar area.	Site observations.	3	3	For the overall mine, the availability of topsoil should be investigated.	-
	Khumani and Sishen' s will work together to establish mutual storm water management systems (i.e. berms) upstream of the mutual opencast pits.	Compliant. Khumani and Sishen are successfully reming the barrier pillar with no incidents reported to the auditor. Berms are in place around opencast pits to minimise inflows. Inpit dewatering is also undertaken as and when required.	Site observations.	3	3	No recommendations.	-
	In addition, the mine will commit to the sharing of dust monitoring data with Sishen and will together with Sishen appoint an external specialist to assess the existing dust monitoring system and amend this where necessary. The specialist will also be appointed to prepare an overall dust monitoring report which will be submitted to the DTEC and DME annually.	Information sharing is being undertaken in terms of groundwater and air quality on site. Forums are also hosted by Khumani, which is being attended by Sishen.	Site observations.	3	3	No recommendations.	-
	The mine will ensure to mine all iron ore within their existing mining rights application optimally to limit the impact on green field areas.	Compliant. Ongoing exploration is being undertaken as well as opportunities to investigating improvements or additions of new plant technologies.	2017 Basic Assessment Report Application	3	3	No recommendations.	-
Compliance Rating				21	21	100,00%	



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Table 9: EMP Environmental Audit: Barrier Pillar ROD (Undated – around 2008)

Number/Description	Requirement	Observation	Source Document/Observation	Rate	Target Rate	Recommendation	Responsible person
ROD Conditions							
1	This approval doesn't purport to absolve Assmang Ltd from its common law obligations towards the owner (s) of the surface of land affected.	The Licence Holder is aware of this condition. It is important to note that the Licence Holder is Assmang (Pty) Ltd and not Assmang Ltd.	Site observations.	1	3	The Mine should notify the DMR of the Licence Holder Name, this could be undertaken as part of the planned Environmental Authorisation process scheduled for early 2020. This condition amendment will be a Regulation 29 Part 1 amendment.	SHEQ Department
2	This approval provides no relief from the provisions of any other relevant statutory or contractual obligations.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No recommendations.	-
3	All available topsoil must be stripped and stockpiled separately prior to any surface disturbance.	Topsoil is being stockpiled at Bruce and King.	Site observations.	3	3	No recommendations.	-
4	Environmental management must conform to the Environmental Management Programme as approved.	Please refer to the assessment of the EMP presented herewith.	2018 Environmental Audit	T/N	T/N	The findings of the performance assessment should be addressed by the Licence Holder before the next annual audit.	SHEQ Department
5	Mining activities must conform to all legislation and such other conditions as may be imposed by the Regional Manager or any other official of this office, duly authorised thereto.	All environmental permits for the purposes of this Environmental Authorisation Activity (MPRDA, NWA and NEMA) were received for this project. The Mine has also received a provisional AEL for the Diesel Storage Tanks by the NCDENC.	Site observations.	3	3	No recommendations.	-
6	The department of Public Works, Roads and Transport is responsible for all surface disturbances on the mining area, which includes all historical surface disturbances.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No recommendations.	-
7	The financial provision provided in terms of Section 41 and Regulation 53 of the Act must be periodically reviewed and adjusted (Regulation 54(2) refers) to conform to the above-mentioned mining activities.	The Financial Provision is assessed annually.	Financial Provision Report, May 2019	3	3	No recommendations.	-



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8	Any alteration or deviation from the environmental Management Programme must be reported to the Regional Manager for his approval or consideration.	The Licence Holder is aware of this condition and reporting is done through the auditing processes.	Site observations.	T/N	T/N	No recommendations.	-
9	The approved Environmental Management Programme that is attached is for implementation and compliance to the conditions stipulated therein.	Please refer to the assessment of the EMP presented herewith.	Site observations.	T/N	T/N	The findings of the performance assessment should be addressed by the Licence Holder before the next annual audit.	SHEQ Department
10	Note that a copy of the approved Environmental Management Programme must always be available on the mine premises for inspection by duly authorised officers.	Compliant. A copy is kept at the Environmental Department (Mr Dirk Coetzee)	Site observations.	3	3	No recommendations.	-
11	The plan must be updated on a regular basis regarding the actual progress of the establishment of surface infrastructure, mining operations and rehabilitation.	The EMP has been updated for the purposes of expansions to Mine Residue Stockpiles and changes to infrastructure such as new Plants, additional Diesel Storage and the Railway Line Diversion. Mine Work Programmes are annually updated and submitted to the DMR. It should be noted that the barrier pillars to the east of the Bruce boundary are also mined by Sishen and Khumani. These areas, earmarked for opencast pits, have been indicated in the 2006 EMP as BC South Opencast Pit.	Site observations.	3	3	It is recommended that the various Environmental Authorisations and EMPs be consolidated into one holistic document.	SHEQ Department
12	No mining activities and infrastructure are allowed within the 1:50 year flood line or 100m from the edge of the river whatever is the greatest, without the necessary authorisation from DWAF.	The Licence Holder is aware of this condition, no areas of concern were observed during the site visit.	Site observations.	3	3	No recommendations.	-
13	No mining waste will be allowed to be deposited in a natural drainage lines, erosion gullies and or dongas, unless agreed thereto in writing with the Regional Manager.	The Licence Holder is aware of this condition. Spills from the Plant are placed in borrow pit areas to the south of the Plant – according to the client this is regarded as product to be sold. This area is however not demarcated for such purpose.	Site observations.	1	3	Material may only be stockpiled on approved footprints. Any new stockpile areas must receive the necessary environmental authorisations.	SHEQ Department
14	Monitoring must be conducted on a continuous basis in line with regulation 55.	Annual audits have been undertaken on compliance with the EMP.	Environmental Audit Reports, December 2018, Proof of submission, January 2019	3	3	The Environmental Audit Reports should be submitted to the DMR within 30 days of finalisation.	SHEQ Department



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15	Performance assessment report as contemplated in regulation 55(1)(c) must be submitted annually (from the date on which the right was granted) to the Regional Manager: Mineral Development.	Annual audits have been undertaken on compliance with the EMP.	Environmental Audit Reports, December 2018 Proof of submission, January 2019	3	3	The Environmental Audit Reports should be submitted to the DMR within 30 days of finalisation.	SHEQ Department
Compliance Rating				26	30	86,67%	



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Table 10: EMP Environmental Audit: Railway Line and Infrastructure Expansion (April 2009)

Number/Description	Number/Description	Requirement	Observation	Rate	Target	Recommendation	Responsible person
	EMP Requirements						
Removal of existing railway line (sections falling outside of approved King pits)	The area from which the existing track is removed (and does not fall within the King opencast pit areas) will be ripped and shaped to follow the natural contours as far as practically possible.	Not applicable, this activity has not been undertaken to date.	Site observations.	T/N	T/N	The Licence Holder should take note of the rehabilitation requirements.	SHEQ Department
	Natural vegetation will be retained wherever possible. Natural vegetation establishment (self-succession) will be encouraged. Ripping and shaping will take place. The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites. An ecological approach to rehabilitation and screening measures, as opposed to a horticultural approach to landscaping, will be adopted. For example, communities of indigenous plants enhance biodiversity and blend well with existing vegetation.	Not applicable, this activity has not been undertaken to date.	Site observations.	T/N	T/N	The Licence Holder should take note of the rehabilitation requirements.	SHEQ Department
	The construction areas will be fenced off. Fences will be regularly inspected.	The mining area is fenced off.	Site observations.	3	3	No recommendation.	-
	Vehicles will be equipped with mufflers where practical to reduce the emission of noise. Where noise becomes a nuisance management measures will be investigated and implemented to address these. Construction activities will be limited to the hours of 7h00 to 18h00 weekdays. Induction and awareness training will address the need to keep noise to a minimum.	No areas of concern were observed around the linear infrastructure during the site visit, especially where vehicles travels. During the site visit the workshop personnel at the King Workshop explained that all vehicles must report to the workshop at least weekly for inspection. In addition to this, no construction is undertaken after hours.	Site observations.	3	3	No recommendation.	-
Railway line diversion (operational phase)	Activity: Operation and maintenance of trains						
	<i>Environmental Parameter: Soil, land capability and land use</i>						
1	Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP). Actions: The detailed waste management programme will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.	A Waste Management Procedure is in place on site. Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ	Site observations. Contractor Management Procedure (Document Number: SP_155129) Waste Management Procedure: 2016-12-06	3	3	No recommendation.	-



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		<p>files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness</p>					
2	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping</p>	<p>This is being undertaken by means of the IsoMetrix system; all observations identified during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental Department.</p> <p>Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. Due to the various spills of water on site the manner in creating awareness is questioned. A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>Engineering meetings are undertaken every Monday, and the Environmental Department attend at least twice a month. For Bruce, a presentation is given on Environmental Awareness or observations of</p>	Site observations.	1	3	It is recommended that the training in terms of the use of spill kits are rerun on site.	SHEQ Department



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	practices.Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.Actions: The incident management system will be communicated to all people working on site.The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.	inspections that must be flagged, and outcomes of monitoring results. Training in terms of the use of spill kits have not been undertaken in the past 3 years.					
3	Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP). Actions: The detailed waste management programme will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.	A Waste Management Procedure is in place on site. Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations. The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness	-	Dup	Dup	No further recommendations.	-
4	Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture.	This is being undertaken by means of the IsoMetrix system; all observations identified during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental (SHEQ) Department.	-	Dup	Dup	No further recommendations.	-



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	<p>Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.</p> <p>Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: The incident management system will be communicated to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. Due to the various spills of water on site the manner in creating awareness is questioned.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>Engineering meetings are undertaken every Monday, and the Environmental Department attend at least twice a month. For Bruce, a presentation is given on Environmental Awareness or observations of inspections that must be flagged, and outcomes of monitoring results.</p> <p>Training in terms of the use of spill kits have not been undertaken in the past 3 years.</p>					
Railway siding (operational phase)							
1	<p>Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP). Actions: The detailed waste management programme will be provided to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>A Waste Management Procedure is in place on site.</p> <p>Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained</p>	-	Dup	Dup	No further recommendations.	-



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		<p>in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>The following ongoing meetings are undertaken on site:</p> <ul style="list-style-type: none"> * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness 					
2	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the</p>	<p>This is being undertaken by means of the IsoMetrix system; all observations identified during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental Department.</p> <p>Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. Due to the various spills of water on site the manner in creating awareness is questioned.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>Engineering meetings are undertaken every Monday, and the Environmental Department attend at least twice a month. For Bruce, a presentation is given on</p>	-	Dup	Dup	No further recommendations.	-



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	<p>implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: The incident management system will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>Environmental Awareness or observations of inspections that must be flagged, and outcomes of monitoring results.</p> <p>Training in terms of the use of spill kits have not been undertaken in the past 3 years.</p>					
3	<p>Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP).</p> <p>Actions: The detailed waste management programme will be provided to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>A Waste Management Procedure is in place on site.</p> <p>Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness</p>	-	Dup	Dup	No further recommendations.	-
4	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major</p>	<p>This is being undertaken by means of the IsoMetrix system; all observations identified during the site inspections (checklists) are captured on IsoMetrix. The</p>	-	Dup	Dup	No further recommendations.	-



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	<p>spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Actions: The incident management system will be communicated to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>records are kept with the checklists at the Environmental Department.</p> <p>Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. Due to the various spills of water on site the manner in creating awareness is questioned.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>Engineering meetings are undertaken every Monday, and the Environmental Department attend at least twice a month. For Bruce, a presentation is given on Environmental Awareness or observations of inspections that must be flagged, and outcomes of monitoring results.</p> <p>Training in terms of the use of spill kits have not been undertaken in the past 3 years.</p>					
Expansion of Capacity (operational phase)							
1	<p>Management Measure: Only the areas that have received approval for the establishment of open pits will be mined.</p> <p>Actions: The mining programme has been developed and will be implemented.</p>	<p>This activity has not commenced to date.</p>	<p>Site observations.</p>	T/N	T/N	<p>Licence Holder to take note of the required conditions.</p>	<p>SHEQ Department</p>
2	<p>Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP).</p> <p>Actions: The detailed waste management programme will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>This activity has not commenced to date.</p>	<p>Site observations.</p>	T/N	T/N	<p>Licence Holder to take note of the required conditions.</p>	<p>SHEQ Department</p>



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3	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDSs must be displayed where hydrocarbons and/or chemicals are stored and utilised. Brief all employees on the location of the MSDS and how this should be utilised. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all construction teams and contractors.</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department



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	The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.						
4	<p>Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP).</p> <p>Actions: The detailed waste management programme will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department
5	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Actions: Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised. Brief all employees on the location of the MSDS and how this should be utilised. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department



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	communicated to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions. Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.						
6	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised. Brief all employees on the location of the MSDS and how this should be utilised. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all construction teams and contractors.</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department



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	The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions. Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.						
7	<p>Management Measure: Erosion prevention measures will be implemented. Ascertain the erosion potential of soils and ensure that erosion-control measures are in place where necessary. The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites. Areas of construction must be clearly demarcated. No construction or project related activities may be undertaken outside of the demarcated areas. Where vegetation cannot be established during the life of construction and operations, appropriate measure will be taken to control erosion. These will include grading of surfaces to prevent rapid run-off of storm water and / or the use of energy dissipaters. Erosion control measures are required on all slopes exceeding 2% and engineered erosion control measures are required on all slopes exceeding 15%. Slope angles of topsoil stockpiles will not exceed 1:3 (18°). Clean and dirty water systems must be established prior to construction. Catchment paddocks are to be constructed and utilised. Measures to limit siltation of containment dams will be implemented.</p> <p>Actions: Ensure that all design drawings include effective erosion control measures. Draw up a surface water-monitoring programme to prevent, manage and monitor potential erosion. Construct the required erosion protection measures. Ensure the required erosion protection measures are maintained. Ensure the required erosion protection measures are monitored and corrected where necessary.</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department
8	<p>Management Measure: Products will be stockpiled adjacent to existing stockpiles in order to reduce the cumulative impact potential. Stockpiles will have a similar form to that of the existing stockpiles.</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department



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	Actions: The original product stockpiling procedures will be adapted to allow for the increase in product stockpiling.						
9	<p>Management Measure: Table 4-3, Section 4 of the EMP indicates the dust control measures that are currently implemented.</p> <p>The dust monitoring programme in Section 5.2. of the EMP will be adhered to.</p> <p>Wet suppression will take place as and when required</p> <p>Actions: Dust control measures have been outlined (refer to Table 4-3, Section 4 of the EMP).</p> <p>The dust monitoring programme in Section 5.2. of the EMP will be adhered to.</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department
10	<p>Management Measure: Ensure that preference is given to local labour.</p> <p>Actions: Audit and ensure compliance with the Social and Labour Plan.</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department
11	<p>Management Measure: Assmang participated in the development of the Integrated Development Plan (IDP) for Tsantsabane municipality. Since the planned KIOM falls on the boundary between the Tsantsabane and Gamagara magisterial areas, it is anticipated that Assmang will extend its involvement to the development of the IDP for Gamagara Local Municipality. The KIOM will be in continuous contact with the local authorities to discuss infrastructure and socio economic restrictions, and how the mine can contribute to limiting these impacts. Actions: Audit and ensure compliance with the Social and Labour Plan.</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department
12	<p>Management Measure: The KIOM maximises the use of the local workforce component.</p> <p>Benefits to communities surround the KIOM site will flow from the mine's social investment activities.</p> <p>Assmang's current social investment programme for communities surrounding the Beeshoek Mine places particular emphasis on the provision of education, training and skills development opportunities.</p> <p>Assmang has undertaken that this trend will continue at the KIOM project. The social investment will result in positive socio-economic spin-offs for surrounding communities by broadening trainees' skills base, and hence improving their chances of securing gainful employment.</p> <p>A wide variety of training and skills development</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department



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	<p>systems will be made available to all KIAM employees. These training materials serve to build flexible, portable skills profiles, and reflect the true lifelong learning opportunities available at Assmang to employees, contractor employees and the wider surrounding communities.</p> <p>The Assmang Group has a very close, mature, cooperative and transparent relationship with its surrounding communities, leaders, locally based NGOs, local municipality leaders, educational leaders, and local government departments such as the Departments of Labour, Welfare, and Agriculture etc. The Assmang Group currently spends one percent of after-tax profit on local Social Investment projects, aligned with the local IDP, on an annual basis.</p> <p>The mine will ensure to establish a working group between the neighbouring mines (Sishen and Burk Mine) to ensure that no mining interruptions occur due to the development of the new mine and to limited the potential of cumulative impacts.</p> <p>Assmang will continue its participated in the development of the IDP for Tsantsabane municipality. Since the KIAM falls on the boundary between the Tsantsabane and Gamagara magisterial areas, Assmang will extend its involvement to the development of the IDP for Gamagara Local Municipality.</p> <p>Actions: Audit and ensure compliance with the Social and Labour Plan</p>						
13	<p>Management Measure: Assmang Group has already appointed women in the hard-core business production units such as heavy vehicle operators, samplers, instrumentation mechanics, etc. Assmang Group has also taken a policy decision to increase the focus on women bursary holders and Learnership intakes. These practices will be continued at the new KIAM.</p> <p>Assmang Group has adopted a policy focussing on achieving the 40 % HDSA participation in management. The Equity Manager at KIAM will be the appointed watchdog in the recruitment process to optimise HDSA appointments in vacancies, and to ensure the optimal utilization of the principles of suitably qualified, recognition of prior learning etc., in recruitment.</p> <p>Even though the Assmang Group has implemented a focussed process to promote affirmative action, it must</p>	This activity has not commenced to date.	Site observations.	T/N	T/N	Licence Holder to take note of the required conditions.	SHEQ Department



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	<p>be noted that Assmang is still experiencing difficulties in attracting suitably qualified HDSAs to apply for vacancies. The result is that Assmang will have to rely heavily on its long-term internal accelerated development process and pool, as well as on its internal affirmative action orientated bursary and Learnership systems to achieve Mining Charter targets. The mine will ensure to establish a working group between the neighbouring mines (Sishen and Burk Mine) to ensure that no mining interruptions occur due to the development of the new mine and to limited the potential of cumulative impacts. The mine will continue its participated in the development of the IDP for Tsantsabane municipality. Since the planned KIOM falls on the boundary between the Tsantsabane and Gamagara magisterial areas, Assmang will extend its involvement to the development of the IDP for Gamagara Local Municipality.</p> <p>Actions: Audit and ensure compliance with the Social and Labour Plan.</p>						
Installation of additional diesel generators. (operational phase)							
1	<p>Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP).</p> <p>Actions: The detailed waste management programme will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>This is being undertaken by means of the IsoMetrix system; all observations identified during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental Department.</p> <p>Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. Due to the various spills of water on site the manner in creating awareness is questioned.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained</p>	-	Dup	Dup	No further recommendations.	-



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		<p>in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>Engineering meetings are undertaken every Monday, and the Environmental Department attend at least twice a month. For Bruce, a presentation is given on Environmental Awareness or observations of inspections that must be flagged, and outcomes of monitoring results.</p> <p>Training in terms of the use of spill kits have not been undertaken in the past 3 years.</p>					
2	<p>Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order. All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas. All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored. Spill kits will be available at all areas where hydrocarbons are utilised. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. A rapid response team should be available on 24-hour notice to deal with hazardous spills. A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced. If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Actions: Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all</p>	<p>Pre-start checklists are being implemented for all mine vehicles. No areas of concern were observed around the generators.</p> <p>Well developed emergency plans are in place and rapid response is present on site.</p> <p>In terms of this condition (containment of materials presenting a contamination thread) the following were observed:</p> <ul style="list-style-type: none"> * At the King Laydown area, littering is present. Dustbins are provided but not in use. * At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently bunded. * At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed. * At the King Loading Equipment Workshop, hazardous skips are present, not contained on bunded or concreted area and have no roof or covering. * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained. * At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but 	<p>Site observations.</p>	1	3	<p>It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.</p>	<p>SHEQ Department</p>



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	<p>hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised. Brief all employees on the location of the MSDS and how this should be utilised. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions. The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.</p>	<p>not banded. Hazardous bins are placed on an unlined area. Some drums are stored outside banded areas.</p> <ul style="list-style-type: none"> * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present. * At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted. * At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills. * At the TMM Workshop at Bruce, hazardous skips are present with no lids. * At the Transnet Workshop, the hazardous waste bin filled with domestic waste. * At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing. * Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints. * At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included: <ul style="list-style-type: none"> * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed). <p>Material Safety Data Sheets (MSDSs) are available on site.</p>					



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		<p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness</p>					
3	<p>Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP).</p> <p>Actions: The detailed waste management programme will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>A Waste Management Procedure is in place on site.</p> <p>Education and Awareness: Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any</p>	-	Dup	Dup	No further recommendations.	-



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		<p>new issues arising from these are addressed as Non-Conformance Reports (NCRs));</p> <ul style="list-style-type: none"> * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness 					
4	<p>Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order. All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas. All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored. Spill kits will be available at all areas where hydrocarbons are utilised. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. A rapid response team should be available on 24-hour notice to deal with hazardous spills. A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced. If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitate the soils, as appropriate. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Actions: Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed</p>	Same as Condition #2	-	Dup	Dup	No further recommendations.	-



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	where hydrocarbons and/or chemicals are stored and utilised. Brief all employees on the location of the MSDS and how this should be utilised. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions. Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.						
5	<p>Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order.</p> <p>All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas.</p> <p>All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored.</p> <p>Spill kits will be available at all areas where hydrocarbons are utilised.</p> <p>Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>A rapid response team should be available on 24-hour notice to deal with hazardous spills.</p> <p>A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced.</p> <p>If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate.</p> <p>If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p>	<p>Pre-start checklists are being implemented for all mine vehicles.</p> <p>No areas of concern were observed around the generators.</p> <p>In terms of this the following were observed: * At the King Laydown area, littering is present. Dustbins are provided but not in use. * At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently bunded. * At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed. * At the King Loading Equipment Workshop, hazardous skips are present, not contained on bunded or concreted area and have no roof or covering. * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained. * At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but</p>	-	Dup	Dup	No further recommendations.	-



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	<p>Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised. Brief all employees on the location of the MSDS and how this should be utilised.</p> <p>Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people working on site.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p> <p>Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.</p> <p>The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP</p>	<p>not banded. Hazardous bins are places on an unlined area. Some drums are stored outside banded areas.</p> <ul style="list-style-type: none"> * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present. * At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted. * At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills. * At the TMM Workshop at Bruce, hazardous skips are present with no lids. * At the Transnet Workshop, the hazardous waste bin filled with domestic waste. * At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing. * Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints. * At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included: <ul style="list-style-type: none"> * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed). <p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste</p>					



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		<p>management and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness</p>					
6	<p>Management Measure: Generators will be equipped with necessary measures to reduce the emission of noise. Where noise becomes a nuisance management measures will be investigated and implemented to address these. A maintenance and monitoring programme for the diesel generators will be established. Carry out measurements of noise both within the workplace and at points of sensitivity in order to demonstrate compliance with Occupational Health and Safety Standards. Refer to Section 5.3 of the EMP for the noise monitoring programme.</p> <p>Actions: A maintenance programme will be established and implemented. Noise monitoring forms part of the monitoring schedule.</p>	<p>During the site visit no areas of concern were observed. Generators are placed in designed containments and maintained by the engineering department.</p>	Site observations.	3	3	No recommendation.	-
7	<p>Management Measure: Generators will be equipped with necessary measures to reduce the emission of noise. Workers should be equipped with appropriate gear to ameliorate the effects of noise levels. Construction activities will be limited to the hours of 7h00 to 18h00 weekdays. A maintenance and monitoring programme for the</p>	<p>During the site visit no areas of concern were observed.</p>	-	Dup	Dup	No recommendation.	-



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	<p>diesel generators will be established. Carry out measurements of noise both within the workplace and at points of sensitivity in order to demonstrate compliance with Occupational Health and Safety Standards. Refer to Section 5.3 of the EMP for the noise monitoring programme.</p> <p>Actions: A maintenance programme will be established and implemented. Noise monitoring forms part of the monitoring schedule. Encase any generators used on site in a steel/concrete/brick structure that will aid in containing or dissipating the noise generated.</p>						
8	<p>Management Measure: Generators will be equipped with necessary measures to reduce the emissions of air pollutants. A maintenance and monitoring programme for the diesel generators will be established. Actions: A maintenance programme will be established and implemented.</p>	<p>Maintenance are undertaken by the Engineering Department. Maintenance and monitoring on site is undertaken in terms of prescheduled job cards and checklists.</p>	<p>Site observations.</p>	3	3	<p>No recommendation.</p>	-
9	<p>Management Measure: The generators will be monitored and maintained.</p> <p>Actions: A maintenance programme will be established and implemented.</p>	<p>During the site visit no areas of concern were observed.</p>	-	Dup	Dup	<p>No recommendation.</p>	-
Additional vehicles / construction machinery on site							
1	<p>Management Measure: Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Off-limit areas will be fenced off. Vehicular movements on site will be limited. There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate</p>	<p>No construction activities are taking place for the purposes of this Environmental Authorisation.</p>	<p>Site observations.</p>	NLR	NLR	<p>No recommendation.</p>	-



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	<p>permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.</p> <p>Actions: A vehicle / machinery maintenance and monitoring programme will be developed and established. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all people operating on site as part of the induction and awareness training. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
2	<p>Management Measure: Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Off-limit areas will be fenced off. Vehicular movements on site will be limited. There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.</p> <p>Actions: A vehicle / machinery maintenance and monitoring programme will be developed and established. Ensure the Emergency Preparedness and Response Programme is updated annually.</p>	No construction activities are taking place for the purposes of this Environmental Authorisation.	Site observations.	NLR	NLR	No recommendation.	-



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	<p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people operating on site as part of the induction and awareness training.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
3	<p>Management Measure: Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented.</p> <p>Off-limit areas will be fenced off.</p> <p>Vehicular movements on site will be limited.</p> <p>There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture.</p> <p>Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist.</p> <p>If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.</p> <p>Actions: A vehicle / machinery maintenance and monitoring programme will be developed and established.</p> <p>Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people operating on site as part of the induction and awareness training.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>No construction activities are taking place for the purposes of this Environmental Authorisation.</p>	<p>Site observations.</p>	NLR	NLR	<p>No recommendation.</p>	-



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4	<p>Management Measure: Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Drivers will receive induction and awareness training informing them of the rules related to travelling in designated areas and the importance of conserving the local fauna and flora. Speed limits will be maintained. Speed limit signs will be visible and legible on site. Off-limit areas will be fenced off. Vehicular movements on site will be limited.</p> <p>Actions: Induction and awareness training will include details on the rules relating to site access, speed limits, and the importance of faunal preservation.</p>	No construction activities are taking place for the purposes of this Environmental Authorisation.	Site observations.	NLR	NLR	No recommendation.	-
5	<p>Management Measure: Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Drivers will receive induction and awareness training informing them of the rules related to travelling in designated areas and the importance of conserving the local fauna and flora. Speed limits will be maintained. Speed limit signs will be visible and legible on site. Off-limit areas will be fenced off. Vehicular movements on site will be limited. Actions: Induction and awareness training will include details on the rules relating to site access, speed limits, and the importance of floral preservation.</p>	No construction activities are taking place for the purposes of this Environmental Authorisation.	Site observations.	NLR	NLR	No recommendation.	-
6	<p>Management Measure: Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Regular noise monitoring will take place in order to ensure that emissions do not exceed Occupational Health and Safety Standards.</p> <p>Actions: A vehicle / machinery maintenance and monitoring programme will be developed and established. Refer to Section 5.3 of the EMP for details regarding noise monitoring.</p>	No construction activities are taking place for the purposes of this Environmental Authorisation.	Site observations.	NLR	NLR	No recommendation.	-
7	<p>Management Measure: Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented.</p> <p>Actions: A vehicle / machinery maintenance and</p>	No construction activities are taking place for the purposes of this Environmental Authorisation.	Site observations.	NLR	NLR	No recommendation.	-



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Number/Description	Number/Description	Requirement	Observation	Rate	Target	Recommendation	Responsible person
	monitoring programme will be developed and established.						
8	<p>Management Measure: Speed limits will be maintained. Speed limit signs will be visible and legible on site. Wet suppression will be utilised in order to reduce fugitive dust emissions, Should wet suppression not be sufficient, soil binding agents (such as Dust-a-Side) will be utilised.</p> <p>Actions: Induction and awareness training will include details on the rules relating to speed limits. Dust control measures are outlined in Table 4-2, Section 4.10 of the EMP. Refer to Section 5.2 for details on dust monitoring.</p>	No construction activities are taking place for the purposes of this Environmental Authorisation.	Site observations.	NLR	NLR	No recommendation.	-
Additional workers on site							
1	<p>Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP). All employees will be educated on the procedures to follow and the environmental restrictions regarding all environmental parameters. This will form part of the environmental awareness plan (Section 6 of the EMP). Access on site will be restricted to construction and operational areas. Off-limit areas will be fenced off. Workers will be restricted to construction / operational areas. Penalties will be imposed on all staff that unnecessarily damage any environmental parameters.</p> <p>Actions: Induction and awareness training will address waste management on site.</p>	No construction activities are taking place for the purposes of this Environmental Authorisation.	Site observations.	NLR	NLR	No recommendation.	-
2	<p>Management Measure: A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP). Workers will be restricted to construction / operational areas. All employees will be educated on the procedures to follow and the environmental restrictions regarding all environmental parameters. This will form part of the environmental awareness plan (Section 6 of the EMP). Access on site will be restricted to construction and operational areas. Off-limit areas will be fenced off. Penalties will be imposed on all staff that unnecessarily damage any environmental parameters.</p>	No construction activities are taking place for the purposes of this Environmental Authorisation.	Site observations.	NLR	NLR	No recommendation.	-



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Number/Description	Number/Description	Requirement	Observation	Rate	Target	Recommendation	Responsible person
	<p>Actions: Induction and awareness training will address sanitation. Adequate sanitation facilities will be provided by mine management.</p>						
3	<p>Management Measure: The KIOM will establish and implement a monitoring programme to regulate the harvesting of plant material and fuelwood from the natural vegetation surrounding the mine. The poaching and hunting of animals will be strictly forbidden. All employees will be educated on the procedures to follow and the environmental restrictions regarding all environmental parameters. This will form part of the environmental awareness plan (Section 6 of the EMP). Access on site will be restricted to construction and operational areas. Off-limit areas will be fenced off. Workers will be restricted to construction / operational areas. Penalties will be imposed on all staff that unnecessarily damage any environmental parameters.</p> <p>Actions: All employees will be educated on the procedures to follow and the environmental restrictions regarding all environmental parameters. This will form part of the environmental awareness plan (Section 6 of the EMP).</p>	<p>No construction activities are taking place for the purposes of this Environmental Authorisation.</p>	<p>Site observations.</p>	NLR	NLR	<p>No recommendation.</p>	-
Additional fuels and lubricant storage facilities. (operational phase)							
1	<p>Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order. All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas. All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored. Spill kits will be available at all areas where hydrocarbons are utilised. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages</p>	<p>Pre-start checklists are being implemented for all mine vehicles.</p> <p>No areas of concern were observed around the generators.</p> <p>In terms of the storage of materials presenting a contamination threat the following were observed: * At the King Laydown area, littering is present. Dustbins are provided but not in use. * At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently bunded.</p>	<p>Site observations.</p>	Dup	Dup	<p>It is recommended that the training in terms of the use of spill kits are again implemented on site.</p> <p>It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.</p>	<p>SHEQ Department</p>



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	<p>by the implementation of the good housekeeping practices. A rapid response team should be available on 24-hour notice to deal with hazardous spills. A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced. If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Actions: A vehicle maintenance and monitoring programme will be developed and implemented. Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised. Brief all employees on the location of the MSDS and how this should be utilised. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions. The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.</p>	<ul style="list-style-type: none"> * At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed. * At the King Loading Equipment Workshop, hazardous skips are present, not contained on bunded or concreted area and have no roof or covering. * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained. * At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not bunded. Hazardous bins are placed on an unlined area. Some drums are stored outside bunded areas. * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present. * At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted. * At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills. * At the TMM Workshop at Bruce, hazardous skips are present with no lids. * At the Transnet Workshop, the hazardous waste bin filled with domestic waste. * At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing. * Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints. * At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included: 					



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Number/Description	Number/Description	Requirement	Observation	Rate	Target	Recommendation	Responsible person
		<p>* Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel.</p> <p>* Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter.</p> <p>* Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit.</p> <p>* Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas.</p> <p>* Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed).</p> <p>Spill kits are present on site. Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management, and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site:</p> <p>* 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites;</p> <p>* One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs));</p> <p>* Environmental Forum Meetings held every 6 months; and</p> <p>* Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p>					
2	<p>Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order.</p> <p>All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas.</p> <p>All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored.</p>	<p>Pre-start checklists are being implemented for all mine vehicles.</p> <p>No areas of concern were observed around the generators.</p> <p>In terms of this the following were observed:</p>	Site observations.	Dup	Dup	<p>It is recommended that the training in terms of the use of spill kits are again implemented on site.</p> <p>It is recommended that an overall inspection be made of each area, its hazardous</p>	SHEQ Department



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	<p>Spill kits will be available at all areas where hydrocarbons are utilised.</p> <p>Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>A rapid response team should be available on 24-hour notice to deal with hazardous spills.</p> <p>A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced.</p> <p>If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate.</p> <p>If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.</p> <p>Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: A vehicle maintenance and monitoring programme will be developed and implemented.</p> <p>Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised.</p> <p>Brief all employees on the location of the MSDS and how this should be utilised.</p> <p>Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p>	<p>* At the King Laydown area, littering is present. Dustbins are provided but not in use.</p> <p>* At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently banded.</p> <p>* At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed.</p> <p>* At the King Loading Equipment Workshop, hazardous skips are present, not contained on banded or concreted area and have no roof or covering.</p> <p>* At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained.</p> <p>* At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not banded. Hazardous bins are placed on an unlined area. Some drums are stored outside banded areas.</p> <p>* At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present.</p> <p>* At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted.</p> <p>* At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills.</p> <p>* At the TMM Workshop at Bruce, hazardous skips are present with no lids.</p> <p>* At the Transnet Workshop, the hazardous waste bin filled with domestic waste.</p> <p>* At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing.</p>				material storage requirements, available bund, labelling of the bund capacity and actions on improvement.	



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	<p>The incident management system will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions. Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.</p>	<p>* Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints. * At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included: * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed). Spill kits are present on site. Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills. The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p>					



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3	<p>Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order. All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas. All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored. Spill kits will be available at all areas where hydrocarbons are utilised. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. A rapid response team should be available on 24-hour notice to deal with hazardous spills. A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced. If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Actions: A vehicle maintenance and monitoring programme will be developed and implemented. Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised. Brief all employees on the location of the MSDS and how this should be utilised. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management</p>	<p>Pre-start checklists are being implemented for all mine vehicles.</p> <p>No areas of concern were observed around the generators.</p> <p>In terms of this the following were observed:</p> <ul style="list-style-type: none"> * At the King Laydown area, littering is present. Dustbins are provided but not in use. * At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently bunded. * At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed. * At the King Loading Equipment Workshop, hazardous skips are present, not contained on bunded or concreted area and have no roof or covering. * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained. * At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not bunded. Hazardous bins are placed on an unlined area. Some drums are stored outside bunded areas. * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present. * At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted. * At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills. * At the TMM Workshop at Bruce, hazardous skips are present with no lids. 	<p>Site observations.</p>	Dup	Dup	<p>It is recommended that the training in terms of the use of spill kits are again implemented on site.</p> <p>It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.</p>	SHEQ Department



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	<p>system will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions. Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.</p>	<p>* At the Transnet Workshop, the hazardous waste bin filled with domestic waste. * At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing. * Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints. * At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included: * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed).</p> <p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the</p>					



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Number/Description	Number/Description	Requirement	Observation	Rate	Target	Recommendation	Responsible person
		Environmental Department is not yet involved but should form part of this to create environmental awareness.					
4	<p>Management Measure: There shall be an emergency preparedness plan in place in order to fight accidental fires should they occur. The adjacent landowners/users/managers should also be informed and/or involved. The induction and awareness programmes will address fire-related issues. There must be sufficient fire-fighting equipment. This equipment must fulfil the South African Occupation Health and Safety requirements. All vegetation adjacent to the fuel storage tanks will be continually removed. All provisions relating to fire safety will be related during the induction and awareness training programme. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p>	<p>The Emergency Preparedness and Response Plan makes provision for firefighting on site.</p> <p>A well developed induction programme is in place for all levels on the mine – contractors, visitors and long term employees, which addressed emergency procedures.</p> <p>A specific fire department is also present on the Khumani Mine.</p> <p>Areas where fuel is stored, such as Bruce and King Bulk storage areas are well managed in terms of vegetation clearance.</p>	Mandatory Code of Practice on Emergency Preparedness and Response (updated 2019).	3		No recommendation.	-
5	<p>Management Measure: There shall be an emergency preparedness plan in place in order to fight accidental fires should they occur. The adjacent landowners/users/managers should also be informed and/or involved. The induction and awareness programmes will address fire-related issues. There must be sufficient fire-fighting equipment. This equipment must fulfil the South African Occupation Health and Safety requirements. All vegetation adjacent to the fuel storage tanks will be continually removed. All provisions relating to fire safety will be related during the induction and awareness training programme. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p>	The Emergency Preparedness and Response Plan makes provision for firefighting on site.	Mandatory Code of Practice on Emergency Preparedness and Response (updated 2019).	Dup	Dup	No recommendation.	-
6	Management Measure: There shall be an emergency preparedness plan in place in order to fight accidental fires should they occur. The adjacent	The Emergency Preparedness Plan makes provision for firefighting on site.	Mandatory Code of Practice on Emergency	Dup	Dup	No recommendation.	-



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	<p>landowners/users/managers should also be informed and/or involved.</p> <p>The induction and awareness programmes will address fire-related issues.</p> <p>There must be sufficient fire-fighting equipment. This equipment must fulfil the South African Occupation Health and Safety requirements.</p> <p>All vegetation adjacent to the fuel storage tanks will be continually removed.</p> <p>All provisions relating to fire safety will be related during the induction and awareness training programme.</p> <p>Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p>		Preparedness and Response (updated 2019).				
Additional sewerage works (operation phase)							
1	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. The incident management programme will address sewerage spills. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. All water leaving sewerage works will be channelled into the dirty water system, feeding the storm water dams. The sewerage works will be monitored on a weekly basis. Actions: Sewerage plant monitoring will be incorporated into the monitoring schedule. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all people working on</p>	<p>The STPs on site are presenting concerns in terms of dirty water management and discharges:</p> <p>* At the Bruce STP, a spill is present outside a manhole of the facility with an odour present in this area. Discharge of the treated water takes place through a pipe into a channel to Bruce PCD. This channel is constructed with bricks which is effective for erosion management at the discharge point, but will likely not limit seepage. A poor odour is also present at the channel where the treated sewage discharges, raising concerns in terms of the water quality.</p> <p>* At the King STP at the Workshop, discharge into environment downgradient of the STP was observed with a marshy area created. The treated water should report to the Crusher PCD. In addition to this, the green JoJo tank within the Plant indicates leakage.</p> <p>* At the King Crusher PCD STP, the sump (drying beds) is almost full. The water sump is also very full, with the overall system indicating a lack of maintenance and inspections. Discharge of treated water was visible from the system into the open environment. This water should report to the Crusher PCD but is discharged via pipe prior to reaching the dam. A poor odour present in this area, raising concerns in terms of the water quality. The filter box into the sump indicates that it is blocked, with spills present.</p>	<p>Site observations.</p> <p>Water Monitoring Results, spreadsheet received 28 August 2019.</p>	0	3	<p>The discharges of the STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these should be actioned for clean-up or maintenance.</p>	SHEQ Department



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	site.Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.	Water quality results are available to confirm the effectiveness of the STP treatment process. According to the report, Faecal Coliforms are present at the Parson STP, the Parson STP HOD (although this was absent for June and July 2019), the Parson STP HPGR Workshop, Parson Scrap Yard, Bruce STP, Load-Out STP, and at both King STPs According to the DWS Guidelines for domestic drinking water) - a count of more than 20 counts /100ml can cause a significant and increasing risk of infectious disease transmissions. Even when considering the guidelines for irrigation the target water quality is 1 count /100ml; above this there is a likelihood of contamination of crops and pastures and water treatment is required.					
2	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. The incident management programme will address sewerage spills. Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. All water leaving sewerage works will be channelled into the dirty water system, feeding the storm water dams. The sewerage works will be monitored on a weekly basis. Separate clean and dirty water systems to be maintained. Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: Sewerage plant monitoring will be incorporated into the monitoring schedule.</p>	<p>The water leaving the STPs are not formally channelled to the PCDs, except for the Bruce STP.</p> <p>No monitoring of water quality is undertaken at the King PCDs.</p> <p>Monitoring of the STPs is only undertaken monthly and not weekly as required in the EMP.</p>	<p>Site observations.</p> <p>Water Monitoring Results, spreadsheet received 28 August 2019.</p>	0	3	<p>The discharges of the STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these should be actioned for clean-up or maintenance.</p> <p>Monitoring of the STPs' treated water should be undertaken weekly.</p>	SHEQ Department



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	<p>Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people working on site.</p> <p>Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.</p> <p>Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p>						
3	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>The incident management programme will address sewerage spills.</p> <p>Major spillage incidents will be reported to the DME, DWAF, DACE and the Department of Agriculture.</p> <p>Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist.</p> <p>If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.</p> <p>All water leaving sewerage works will be channelled into the dirty water system, feeding the storm water dams.</p> <p>The sewerage works will be monitored on a weekly basis.</p> <p>Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.</p> <p>Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Actions: Sewerage plant monitoring will be incorporated into the monitoring schedule.</p> <p>Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p>	<p>The water leaving the STPs are not formally channelled to the PCDs, except for the Bruce STP.</p> <p>No monitoring of water quality is undertaken at the King PCDs.</p> <p>Monitoring of the STPs is only undertaken monthly and not weekly as required in the EMP.</p>	<p>Site observations.</p> <p>Water Monitoring Results, spreadsheet received 28 August 2019.</p>	Dup	Dup	<p>The discharges of the STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these should be actioned for clean-up or maintenance.</p> <p>Monitoring of the STPs' treated water should be undertaken weekly.</p>	SHEQ Department



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	The incident management system will be communicated to all people working on site. Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.						
4	Management Measure: The sewerage plants are/will be located at sufficient distances from work areas to prevent disturbance of workers. Excessive odours must be dealt with by the mine. The sewerage plant will be monitored and maintained in order to reduce / eliminate unpleasant odours. Qualitative monitoring of odours will take place. Actions: Sewerage plant monitoring will be incorporated into the monitoring schedule.	<p>Odours are present and the majority of STPs.</p> <p>The STPs on site are presenting concerns in terms of dirty water management and discharges:</p> <p>* At the Bruce STP, a spill is present outside a manhole of the facility with an odour present in this area. Discharge of the treated water takes place through a pipe into a channel to Bruce PCD. This channel is constructed with bricks which is effective for erosion management at the discharge point but will likely not limit seepage. A poor odour is also present at the channel where the treated sewage discharges, raising concerns in terms of the water quality.</p> <p>* At the King STP at the Workshop, discharge into environment downgradient of the STP was observed with a marshy area created. The treated water should report to the Crusher PCD. In addition to this, the green JoJo tank within the Plant indicates leakage.</p> <p>* At the King Crusher PCD STP, the sump (drying beds) is almost full. The water sump is also very full, with the overall system indication a lack of maintenance and inspections. Discharge of treated water was visible from the system into the open environment. This water should report to the Crusher PCD but is discharged via pipe prior to reaching the dam. A poor odour present in this area, raising concerns in terms of the water quality. The filter box into the sump indicates that it is blocked, with spills present.</p> <p>Water quality results are available to confirm the effectiveness of the STP treatment process. According to the report, Faecal Coliforms are present at the Parson STP, the Parson STP HOD (although this was absent for June and July 2019), the Parson STP HPGR Workshop, Parson Scrap Yard, Bruce STP, Load-Out STP, and at both King STPs. According to the DWS Guidelines for domestic drinking water) - a count of more than 20 counts /100ml can cause a significant and increasing risk of infectious disease transmissions. Even when considering the guidelines for irrigation the</p>	<p>Site observations.</p> <p>Water Monitoring Results, spreadsheet received 28 August 2019.</p>	0	3	<p>The discharges of the STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these should be actioned for clean-up or maintenance.</p> <p>Monitoring of the STPs' treated water should be undertaken weekly.</p>	SHEQ Department



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		target water quality is 1 count /100ml; above this there is a likelihood of contamination of crops and pastures and water treatment is required.					
The applicant is herein authorised to undertake the following alternative related to the listed activity/ies:							
	Decommissioning and closure <ul style="list-style-type: none"> • Backfilling • The use of hydrocarbons and other hazardous chemical substances • Vehicles / machinery on site • Staff on site • Waste generations 						
Backfilling							
Topography Backfilling	During the operational phase the underlying strata will be removed. It will not be possible to return the opencast pits to original pre-mining conditions. The KIOM, however plans to undertake continuous backfilling throughout the mining operation in order to eliminate double handling. An amount of 172 million tons will be backfilled. Continuous backfilling will be included in operational procedures throughout the mining operation in order to eliminate double handling.	Backfilling will still be undertaken as per original volumes, however the backfilling schedule has changed substantially as the Mine wishes to keep pits open for longer to ensure the optimal utilisation of these infrastructure and resources.	Site observations.	TBA	TBA	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020. The condition should be amended to allow for the backfilling process to be undertaken in a dynamic mining operation and in line with the commitments made in the Financial Provision – Annual Rehabilitation Plan.	SHEQ Department
Soil, land capability and land use Rehabilitation of the opencast pits will allow the restoration of land use.	During the decommissioning phase the rehabilitation of the opencast area will be undertaken. The final land use objective will be determined in conjunction with the various I&AP's as well as the end land users. It is however envisaged to return the mining area to near pre-mining conditions. I&AP input will influence rehabilitation plants. I&APs will be consulted during the rehabilitation.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Surface water The remaining voids may interfere with the run-off of the catchment.	Clean water systems upstream from the open voids will remain to ensure that there is no impact on the run off of the catchment. The clean water diversions on King and King / Mokaning will be engineered and constructed in such a way to be stable and to remain after closure. The surface water quality will be monitored, where available, in order to determine/verify the effect of the mining operations on surface water quality. The results will be presented to the DWAF on a yearly basis.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	The area will be rehabilitated to be free draining by implementing storm water drainage systems, which will follow the natural drainage direction. Surface water will be monitored in accordance with Section 5.1.1 of the EMP. Ensure the maintenance monitoring of the clean water system upstream of the open voids forms part of the rehabilitation plan. Clean water diversion designs will take closure into account. Surface water monitoring will continue for three (3) years following closure. The results are to be submitted to the DWAF on a yearly basis.						
Fauna No impact change expected during this phase. With the completion of the rehabilitation, fauna will slowly return to the area as the disturbances will be reduced.	Re-create a habitat that is suitable for animals to forage or live within. The objective will further be to make the areas safe for animals to live in.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Air quality Fugitive dust will be produced during the backfilling process.	Table 4-2, Section 4.3 of the EMP indicates the dust control measures that will be implemented. The dust monitoring programme in Section 5.2. of the EMP will be adhered to. The dust control measures outlined in Table 4-2, Section 4.3 of the EMP will be applied during the decommissioning and closure phase. Update and implement the dust management plan. Ensure the Environmental Awareness Plan is updated annually. Brief employees on the Environmental Awareness Plan and enforce the implementation thereof. Implement a penalty system for non-compliance to the Environmental Awareness Plan.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Haul Roads							
Decommissioning and closure	• Removal of road materials• Rehabilitation (ripping, applying topsoil and landscaping)• The use of hydrocarbons and other hazardous chemical substances• Vehicles / machinery on site• Staff on site• Waste generations						
Decommissioning phase							
Activity: Removal of road material							
Visual The removal will leave a bare "scar" on the landscape, creating a	Natural vegetation establishment (self-succession) will be encouraged. The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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temporary visual impact.	<p>establish on rehabilitated sites.</p> <p>An ecological approach to rehabilitation and screening measures, as opposed to a horticultural approach to landscaping, will be adopted. For example, communities of indigenous plants enhance biodiversity and blend well with existing vegetation.</p> <p>Plans for the removal will include landscape restoration.</p> <p>All soils will be ripped and prepared to allow for the self-succession of natural vegetation.</p>						
Activity: Ripping and applying topsoil							
<p>Topography</p> <p>The natural topography will be restored through the removal of the road infrastructure and the ripping of material.</p>	<p>All infrastructure will be removed.</p> <p>The area will be rehabilitated to be free draining.</p> <p>Rehabilitation of the site will include the restoration of the natural topography.</p> <p>Plans for the removal of the roads will include landscape restoration.</p> <p>Monitor and manage all rehabilitated areas.</p>	<p>The Licence Holder is aware of this condition. The mine is still in operational phase.</p>	Site observations.	T/N	T/N	No current recommendations.	-
<p>Topography</p> <p>The ripping of the soils and removal of the platforms will restore the area to that of a more natural, gentle topography.</p>	<p>All hard surfaces will be ripped.</p> <p>Platforms will be broken up in order to remove the topographical incongruity.</p> <p>Landscaping will be included in the rehabilitation plan.</p> <p>Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.</p> <p>Include access control measures in the areas where rehabilitation is being undertaken.</p> <p>Monitor and manage all rehabilitated areas.</p>	<p>The Licence Holder is aware of this condition. The mine is still in operational phase.</p>	Site observations.	T/N	T/N	No current recommendations.	-
<p>Soil, land capability and land use</p> <p>Ripping and topsoil replacement will restore the soil physical characteristics.</p>	<p>Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.</p>	<p>The Licence Holder is aware of this condition. The mine is still in operational phase.</p>	Site observations.	T/N	T/N	No current recommendations.	-
<p>Groundwater</p> <p>The ripping of soils will result in greater groundwater recharge due to the softening of surfaces.</p>	<p>Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.</p>	<p>The Licence Holder is aware of this condition. The mine is still in operational phase.</p>	Site observations.	T/N	T/N	No current recommendations.	-
<p>Visual</p> <p>The rehabilitation (ripping, topsoil replacement and landscaping) will</p>	<p>Where possible, landscaping will restore the natural aesthetics of the area.</p> <p>The self-succession of natural vegetation will be encouraged.</p> <p>The mine will investigate an appropriate seed mix for</p>	<p>The Licence Holder is aware of this condition. The mine is still in operational phase.</p>	Site observations.	T/N	T/N	No current recommendations.	-



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remove the visual incongruity.	the rehabilitation purposes should self-succession not establish on rehabilitated sites. Plans for the removal will include landscape restoration. All soils will be ripped and prepared to allow for the self-succession of natural vegetation.						
Fauna No impact change expected during this phase. With the completion of the rehabilitation, fauna will slowly return to the area as the disturbances will be reduced.	Re-create a habitat that is suitable for animals to forage or live within. The objective will further be to make the areas safe for animals to live in.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Flora The presence of exposed soils may lead to an increase in volume and speed of surface water run-off, increasing erosive capacity. Sedimentation of pans and high sediment loads in streams during intensive rain could thus result in loss of wetland and riparian zone integrity in terms of biodiversity and function.	Natural vegetation self-succession will be encouraged. Should vegetation self-succession not take place adequately, appropriate seed mixes and soil preparation techniques will be investigated and implemented. Berms will be constructed around the opencast area and associated mining areas where appropriate, to prevent surface run-off from entering directly into drainage lines and pans. Topsoil and natural vegetation self-succession will be used in the re-vegetation process. The rehabilitation of the soils will play a significant role in the rehabilitation of the vegetation. Erosion control measures are required on all slopes exceeding 2% and engineered erosion control measures are required on all slopes exceeding 15%. Slope angles of topsoil stockpiles will not exceed 1:3 (18°). Monitoring will be undertaken to ensure that the rehabilitated areas are self-sustaining. Monitoring will only cease once this has been confirmed. The rehabilitation plan will include provisions relating to stormwater management and erosion control measures.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Noise The removal process will increase the ambient noise levels in the area.	Vehicles will be equipped with necessary measures where practical to reduce the emission of noise. Spot noise monitoring will be undertaken. Where noise becomes a nuisance management measures will be investigated and implemented to address these. Activities will be limited to the hours of 7h00 to 18h00	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	weekdays. Noise monitoring will take place in accordance with Section 5.3 of the EMP. A pre-planned maintenance plan for vehicles and equipment must be updated. Regular audit or checks to be done on vehicles and equipment						
Conveyors							
Decommissioning	• Removal of conveyors and associated infrastructure • Rehabilitation (ripping, applying topsoil and landscaping) • The use of hydrocarbons and other hazardous chemical substances • Vehicles / machinery on site • Staff on site • Waste generations						
Activity: Conveyors							
Activity: Removal of conveyors and associated infrastructure							
Surface water The presence of exposed soils may lead to an increase in volume and speed of surface water run-off, increasing erosive capacity, thereby causing the sedimentation of surface water.	Natural vegetation self-succession will be encouraged. Should vegetation self-succession not take place adequately, appropriate seed mixes and soil preparation techniques will be investigated and implemented. Berms will be constructed around the opencast area and associated mining areas where appropriate, to prevent surface run-off from entering directly into drainage lines and pans. Topsoil and natural vegetation self-succession will be used in the re-vegetation process. The rehabilitation of the soils will play a significant role in the rehabilitation of the vegetation. Erosion control measures are required on all slopes exceeding 2% and engineered erosion control measures are required on all slopes exceeding 15%. Slope angles of topsoil stockpiles will not exceed 1:3 (18°). Surface water will be monitored in accordance with Section 5.1.1 of the EMP. Monitoring will be undertaken to ensure that the rehabilitated areas are self-sustaining. Monitoring will only cease once this has been confirmed. The rehabilitation plan will include provisions relating to stormwater management and erosion control measures.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Visual The removal will leave a bare "scar" on the landscape, creating a temporary visual impact.	Natural vegetation establishment (self-succession) will be encouraged. The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites. An ecological approach to rehabilitation and screening measures, as opposed to a horticultural approach to landscaping, will be adopted. For example, communities of indigenous plants enhance biodiversity	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	and blend well with existing vegetation. Plans for the removal will include landscape restoration. All soils will be ripped and prepared to allow for the self-succession of natural vegetation.						
Fauna No impact change expected during this phase. With the completion of the rehabilitation, fauna will slowly return to the area as the disturbances will be reduced.	Re-create a habitat that is suitable for animals to forage or live within. The objective will further be to make the areas safe for animals to live in.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Flora The presence of exposed soils may lead to an increase in volume and speed of surface water run-off, increasing erosive capacity. Sedimentation of pans and high sediment loads in streams during intensive rain could thus result in loss of wetland and riparian zone integrity in terms of biodiversity and function.	Natural vegetation self-succession will be encouraged. Should vegetation self-succession not take place adequately, appropriate seed mixes and soil preparation techniques will be investigated and implemented. Berms will be constructed around the opencast area and associated mining areas where appropriate, to prevent surface run-off from entering directly into drainage lines and pans. Topsoil and natural vegetation self-succession will be used in the re-vegetation process. The rehabilitation of the soils will play a significant role in the rehabilitation of the vegetation. Erosion control measures are required on all slopes exceeding 2% and engineered erosion control measures are required on all slopes exceeding 15%. Slope angles of topsoil stockpiles will not exceed 1:3 (18°). Monitoring will be undertaken to ensure that the rehabilitated areas are self-sustaining. Monitoring will only cease once this has been confirmed. The rehabilitation plan will include provisions relating to stormwater management and erosion control measures.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Noise The removal process will increase the ambient noise levels in the area.	Vehicles will be equipped with necessary measures where practical to reduce the emission of noise. Spot noise monitoring will be undertaken. Where noise becomes a nuisance management measures will be investigated and implemented to address these. Activities will be limited to the hours of 7h00 to 18h00 weekdays.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	Noise monitoring will take place in accordance with Section 5.3 of the EMP. A pre-planned maintenance plan for vehicles and equipment must be updated. Regular audit or checks to be done on vehicles and equipment						
Air quality Fugitive dust will be created by wind erosion from exposed surfaces.	Table 4-2, Section 4.3 of the EMP indicates the dust control measures that will be implemented. The dust monitoring programme in Section 5.2. of the EMP will be adhered to. Natural vegetation self-succession will be encouraged. Should vegetation self-succession not take place adequately, appropriate seed mixes and soil preparation techniques will be investigated and implemented. The dust control measures outlined in Table 4-2, Section 4.3 of the EMP will be applied during the decommissioning and closure phase. Update and implement the dust management plan. Ensure the Environmental Awareness Plan is updated annually. Brief employees on the Environmental Awareness Plan and enforce the implementation thereof. Implement a penalty system for non-compliance to the Environmental Awareness Plan. Monitoring will be undertaken to ensure that the rehabilitated areas are self-sustaining. Monitoring will only cease once this has been confirmed. The rehabilitation plan will include provisions relating to stormwater management and erosion control measures.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Activity: Rehabilitation (ripping, applying topsoil and landscaping)							
Topography Natural Topography will be restored through landscaping and the removal of the conveyors.	All infrastructure will be removed. The area will be rehabilitated to be free draining. Rehabilitation of the site will include the restoration of the natural topography. Plans for the removal of the conveyors will include landscape restoration. Monitor and manage all rehabilitated areas.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Soil, land capability and land use Ripping and topsoil replacement will restore the soil physical characteristics.	Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.	The Licence Holder updates the financial provision and annual rehabilitation plans yearly.	Financial Provision Report – Annual Rehabilitation Plan, May 2019.	3	3	No current recommendations.	-



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Number/Description	Number/Description	Requirement	Observation	Rate	Target	Recommendation	Responsible person
Groundwater The ripping of soils will result in greater groundwater recharge due to the softening of surfaces.	Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.	The Licence Holder updates the financial provision and annual rehabilitation plans yearly.	Financial Provision Report – Annual Rehabilitation Plan, May 2019.	3	3	No current recommendations.	-
Visual The rehabilitation (ripping, topsoil replacement and landscaping) will remove the visual incongruity.	Where possible, landscaping will restore the natural aesthetics of the area. The self-succession of natural vegetation will be encouraged. The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites. Plans for the removal will include landscape restoration. All soils will be ripped and prepared to allow for the self-succession of natural vegetation.	The Licence Holder is aware of this condition. The mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Compliance Rating				26	30	87%	



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Table 11: EMP Environmental Audit: Railway Line and Infrastructure Expansion (DMR ROD, 17 February 2011)

Number/Description	Number/Description	Requirement	Observation	Achieved Rating	Rating	Recommendation	Responsible person
1	This approval doesn't purport to absolve Assmang Ltd from its common law obligations towards the owner (s) of the surface of land affected.	The Licence Holder is aware of this condition. It is important to note that the Licence Holder is Assmang (Pty) Ltd and not Assmang Ltd	Site observations.	1	3	The Mine should notify the DMR of the Licence Holder Name, this could be undertaken as part of the planned EIA process scheduled for early 2020. This condition amendment will be a Regulation 29 Part 1 amendment.	SHEQ Department
2	Mining activities must conform to all legislation and such other conditions as may be imposed by the Regional Manager or any other official of this office, duly authorised thereto.	The Licence Holder is aware of this condition.	-	T/N	T/N	No recommendation.	-
3	The company is responsible for all surface disturbances on the mining area, which includes all historical surface disturbances.	The Licence Holder is aware of this condition. A financial provision assessment is undertaken annually.	Financial Provision Report, May 2019.	3	3	No recommendation.	-
4	The financial provision provided in terms of Section 41 and Regulation 53 of the Act must be periodically reviewed and adjusted (Regulation 54(2) refers) to conform to the above mentioned mining activities.	Compliant. The financial provision was updated in May 2019	Financial Provision Report, May 2019.	3	3	No recommendation.	-
5	Note that a copy of the approved Environmental Management Plan must always be available on the mining site for inspection by duly authorised officers.	Compliant. A copy is kept with the Environmental Superintendent.	Site observations.	3	3	No recommendation.	-
6	No mining waste will be allowed to be deposited in a natural drainage lines, erosion gullies and or dongas, unless agreed thereto in writing with the Regional Manager.	The Licence Holder is aware of this condition. Spills from the Plant are placed in borrow pit areas to the south of the Plant – according to the client this is regarded as product to be sold. This area is however not demarcated for such purpose.	Site observations.	1	3	Material may only be stockpiled on approved footprints. Any new stockpile areas must receive the necessary environmental authorisations.	SHEQ Department
7	Performance assessment report as contemplated in regulation 55(1)(c) must be submitted every 2 (two) years (from the date on which the right was granted) to the Regional Manager: Mineral Regulation.	Compliant. Annual audits are being undertaken and the reports submitted to the Departments.	Environmental Audit Report, December 2018. Proof of Submission, January 2019.	3	3	No recommendation.	-
	Specific Additional Requirements						



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Number/Description	Number/Description	Requirement	Observation	Achieved Rating	Rating	Recommendation	Responsible person
1	Before any drilling, prospecting, mining or trenching takes place a Heritage Impact Assessment must be done to determine if there are any archaeological and/or paleontological sites that may be impacted upon by the proposed prospecting activities (Act 25 of 1999).	A Heritage Assessment was undertaken as part of the 2005/2006 studies and again for the 2018 Environmental Authorisation process.	EMP, 2006, BAR, 2017	3	3	No recommendation.	-
2	In terms of section 21 of the National Water Act, 1998 (Act 36 of 1998), all water uses must be licensed and all mining related sections of Water Act must still be met and strictly adhered to including the commitments stipulated in the above mentioned Environmental Management Plan, and any deviations must be communicated to this office.	<p>The Licence Holder is aware of this condition. The mine is operating in terms of an approved WUL, IWML and various Environmental Authorisations.</p> <p>Certain areas must be addressed in the pending WULA and future EMP Amendment, which include: The stockpiles are being constructed in terms of the approved designs and footprint as per the EMP, with the exception of KM02 WRD at King, which has encroached beyond the footprint to the eastern portion of the site - although in areas indicated by past maps as disturbed.</p> <p>Detailed water studies are currently underway to optimise water management on site, and have been included into the current WUL Amendment. Various water use amendments will be applied for which will include:</p> <ul style="list-style-type: none"> * WRD J, which has commenced with construction - under the 2016 issued Environmental Authorisation, but has not been approved in the WUL as the 2016 WULA was withdrawn on request by the DWS during meeting with the Licence Holder, as this 2016 WULA is now included into the overall pending WULA for 2019. * The KM02 WRD design footprint has altered due to the active mining activities in this area and will have to be adjusted in terms of the pending WULA. * Various STPs are present on site which are to be included into the pending WULA. * Various tanks are present on site, which includes the Sedibeng Tanks, which have not in the past been included into the WULs. * A Section 21(j) water use is in place for dewatering for safe mining conditions at both King and Bruce - this use will likely commence in 2024 	<p><u>NEMWA:</u> § Permit 12/9/11/L812/8 for the Landfill Site and Hazardous Storage Facility.</p> <p><u>NWA:</u> § WUL Licence: 10/D41J/BC1J/2122 for the 2013 WUL.</p> <p><u>NEMA (and ECA):</u> § Permit 43/2006 for the development of an iron ore opencast mine with all associated infrastructure; § Permit 47/2009 for the Railway Line Diversion and Local Siding Establishment; § Permit 37/2012 for the expansion of diesel storage and a silo for explosives, construction of a tar road and additional refuelling station, storm water dams and storage tanks; § Permit 56/2013 for the Off-Grade 2 Plant; § Permit 21/2016 for the construction of the WHIMS Plant at Parson, the Expansion of the Parson Discard Dump, Bruce Low-Grade ROM Stockpile and King/Mokaning Low-Grade ROM Stockpile, and the establishment of additional Low-Grade Stockpiles at King;</p>	1	2	The areas which requires amendment, should be incorporated into the current WULA and future planned Environmental Authorisation Process scheduled for early 2020.	SHEQ Department



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		and must be linked to an actual use, such as a Section 21(a).	<p>§ NC30/5/1/2/3/2/1(070)EM for the WHIMS Plant and silo project, 2018.</p> <p><u>MPRDA</u></p> <p>§ MPRDA ROD 2007 for the new Mining Operation and associated EMP dated February 2006;</p> <p>§ MPRDA RODs – undated 2007 (document date of modification states August 2007) for the Barrier Pillar and associated EMP dated April 2007 (this EMP resulted in a change to certain commitments by the Mine since the original EMP);</p> <p>§ MPRDA ROD 2011 for the additional infrastructure such the local siding in line with Permit 47/2009;</p> <p>§ MPRDA ROD 2012 for the additional infrastructure such as the diesel storage in line with Permit 37/2012.</p>				
3	The regulations on the use of water for mining and related activities aimed at the protection of the water resources as published in the Government Notice No. 704 and Government Gazette No. 20119 must be complied with.	The use of waste rock in road construction and berms has not been approved in terms of Regulation 5 of the NEMWA. A WULA is currently in process for this purpose.	Site observations. WUL: 10/D41J/BC1J/2122 (16 March 2013)	1	T/N	The necessary GN704 exemption applications must be applied for.	SHEQ Department
4	No mining activities are allowed within the 1:100 year flood line of a water resource.	Compliant.	Site observations.	3	3	No recommendation.	-
5	No mining may be carried out or within a horizontal distance of 100m from the following structures: servitude, buildings, roads, railways and reserves. If a person prospects or mine within a horizontal distance of 100m, a	All necessary approvals are in place.	Site observations.	3	3	No recommendation.	-



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	risk assessment must be conducted and approved by the Principal Inspector of Mines.						
Compliance Rating				25	29	86%	



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Table 12: EMP Environmental Audit: Railway Line and Infrastructure Expansion (NCDENC ROD, 29 July 2009)

Number/Description	Number/Description	Requirement	Observation			Recommendation	Responsible person
1	Authorisation of the activity is subject to the conditions contained in this authorisation which conditions form part of environmental authorisation and are binding on the holder of the authorisation	The Licence Holder is aware of this condition. The tar road has not been constructed to date.	Site observations.	T/N	T/N	No further recommendations.	-
2	The holder of this authorisation shall be responsible for ensuring compliance with the conditions by any person acting on his or her behalf including but not limited to , an agent sub-contractor, employee or person rendering a service to the holder of the authorisation.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
3	The activity(s) which is authorised may only be carried out at a property indicated above	The silos at Parson has been decommissioned. The ones at the King Plant is currently being considered for decommissioning. The silos will be relocated to Bruce and south of King respectively in line with the EA issued by the DMR in 2018.	Environmental Authorisation ROD Ref No: NC 30/5/1/2/3/2/1/ (070) EM (Dated 27 July 2018)	3		Decommissioning and reconstruction should only take place with the relevant Environmental Authorisations in place.	SHEQ Department
4	Any changes to, or deviations from the project description set out in this authorisation must be approved in writing by the Department before such changes or deviations may be affected. In assessing whether to grant such approval or not the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation in terms of the regulations	The silos at Parson has been decommissioned. The ones at the King Plant is currently being considered for decommissioning. The silos will be relocated to Bruce and south of King respectively in line with the EA issued by the DMR in 2018.	Environmental Authorisation ROD Ref No: NC 30/5/1/2/3/2/1/ (070) EM (Dated 27 July 2018)	3		Decommissioning and reconstruction should only take place with the relevant Environmental Authorisations in place.	SHEQ Department
5	This authorisation does not negate the holder of the authorisations responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
General Conditions							
6	A copy of this authorisation must be kept at the property where the activity will be undertaken. The authorisation must be produced to	Compliant. A copy is kept at the Environmental Superintendent.	Site observations.	3	3	No recommendations.	-



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	any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.						
7	Where any of the applicants contact details change, including the name of the responsible person , the physical or postal address and or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.	The Licence Holder is aware of this condition. It is important to note that the Licence Holder is Assmang (Pty) Ltd and not Assmang Ltd	Site observations.	1	3	The required notification in terms of the correct name must be presented to the DMR.	SHEQ Department
8	In all other cases, the holder of the authorisation must notify the Department, in writing, within 7 days if a condition of this authorisation is not adhered to. Any notification in terms of this condition must be accompanied by reasons for non-compliance.	This condition is not practical to implement. There are various conditions which will not at all times be compliance, in terms of specific operational measures - waste management, hydrocarbon management. It will not be practical to notify the DMR of such issues.	Site observations.	TBA	TBA	It is recommended that this condition be removed from the ROD/ Environmental Authorisation and rather be replace with a condition stating: The Licence Holder must within 24 hours, notify the Competent Authority of the occurrence or detection of any incident on the Site, incidental to the operation of the site, which has the potential to cause, or has caused legal non-compliance, pollution of the environment, health risks, nuisance conditions or water pollution. This is regarded as a Regulation 34 Amendment, which could be incorporated into the overall Environmental Authorisation Process scheduled for early 2020.	SHEQ Department
9	Non-compliance with a condition of this authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the regulations.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
10	This authorisation is subject to the approval by the relevant local authorities i.e. in terms of any relevant legislation administered by those local authorities.	All environmental permits (MPRDA, NWA and NEMA) were received for this project.	Site observations.	3	3	No recommendations.	-
11	The activity may not commence without the necessary permits/licences approvals and or	All environmental permits (MPRDA, NWA and NEMA) were received for this project. The mine has also	Site observations.	3	3	No recommendations.	-



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	service agreements where it is relevant from or with the relevant regulatory authorities whether national , provincial or local (these include but are not limited to National Department of Water and Environmental Affairs, National Department of Agriculture, Forestry and Fisheries, Department of Cooperative Governance and Human Settlement , Department of Water Affairs, Department of Minerals and Resources, Department of Energy Department of Roads and Public Works, Department of Transport, Department of Arts & Culture, Department of Sports and recreation, South African Heritage Resources Agency , South African Civil Aviation Authority).	received a provisional Atmospheric Emissions Licence for the Diesel Storage Tanks by the NCDENC.					
12	This activity, including site preparation, may not commence, before the thirty (30) day appeal period expires or until such time as the Department has considered any appeals that have been lodged.	It is uncertain when the activities commenced. No information could be obtained to assess this finding.	-	0	3	The licence holder must obtain the specific timeframes of construction in order to determine compliance.	SHEQ Department
13	One week's written notice must be given to the Department before commencement with the activity - such notice shall make clear reference to the site location details and the reference number given above.	No notification was given to the DMR or NCDENC in this regard. This condition will remain non-compliant.	Site observation.	0	3	The licence holder should assess whether such notification was submitted to the Department.	SHEQ Department
14	The applicable conditions of the authorisation must form part of all contractors' and sub-contractors' conditions of contract. A performance-based requirement with regard to environmental impact management must be included in all contracts related to any aspect of this authorisation.	All construction activities have been completed. This condition will not be assessed retrospectively, as such information is not currently in place.	Site observation.	NLR	NLR	No recommendations.	-
15	The applicant must carry out regular environmental audits to establish compliance with the conditions of the authorisation and contracts.	Areas in the Mine are divided into Workshops, Wash bays, Plant and Mining. Checklists are available for each of these areas. Environmental Officers are appointed for the Bruce, King and Parson Load-Out Facilities. Monitoring schedules are in place for each of these	Inspection checklists for Environmental Department (available at Durelle Carstens).	3	3	No recommendations.	-



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		<p>sites, planned a year ahead. In terms of the checklists, the mining checklists make specific reference to "any rehabilitation currently in progress and conducted correctly/according to the EMPPr".</p> <p>Annual performance assessments have been undertaken by external Environmental Assessment Practitioners.</p>	Environmental Audit Reports, 2018.				
16	Records relating to the compliance/non-compliance with the conditions of the authorisation and contracts must be kept in a good order. Such records must be made available to the Department within 7 days of receipt of a written request by the Department for such records.	<p>No reportable incidents have been encountered on site according to site interviews.</p> <p>Any on-site incidents are being recorded by means of the IsoMetrix system. All observations identified during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental Department.</p>	Site observations.	3	3	No recommendations.	-
17	Any complaints regarding the said development must be brought to the attention of the Department within 24 hours after receiving the complaint. A complaints register must be kept up to date for inspection by the Department.	All comments are placed on record and addressed. No complaints have been received in the past 12 months.	Site observations.	3	3	No recommendations.	-
18	Officials in the employ of the Department shall be given access to the property as described above (see detailed description of the activity) for the purposes of assessing and/or monitoring compliance with the conditions contained in this RoD. Where the activity is located on a third party's property the applicant shall be responsible to arrange access for departmental officials.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
19	This Department may add to, change and/or amend any of the conditions in this authorisation if, in the opinion of the Department, the additions, change of amendment is environmentally justified. In event that such impacts exceed its significance as predicted in the independent consultant's environmental scoping report and supporting documentation, the authorisation may be withdrawn after proper procedures were followed.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-



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20	In the event of any dispute concerning the significance of a particular impact, the opinion of this department in respect of its significance will prevail.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
21	This Department an any national department, provincial department, local authorities or committees appointed in terms of the conditions of this application or any other public authority or organisation shall not be held responsible for any damage of losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of approval as set out in this document or any other subsequent document emanating from these conditions of approval.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
22	The applicant shall be responsible for all costs necessary to comply with the above conditions unless otherwise specified.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
23	The applicant must apply the principle of best practicable environmental option for all technologies used/implemented during construction.	No construction activities are currently undertaken.	Site observations.	NLR	T/N	No further recommendations.	-
Appeal of the authorisation:							
24	N/A	No appeals were received.	Site observations.	NLR	T/N	No further recommendations.	-
25	N/A	No appeals were received.	Site observations.	NLR	T/N	No further recommendations.	-
26	N/A	No appeals were received.	Site observations.	NLR	T/N	No further recommendations.	-
Management of the activity:							
27	An EMP attached to the Environmental Impact Assessment Report should be adhered to.	The Licence Holder is aware of this condition. The EMP is also audited as part of this audit schedule.	Site observations.	T/N	T/N	No recommendation.	-
Monitoring:							
28	The applicant must appoint an ECO that will have the responsibility of implementing the approved EMP.	No construction activities are currently undertaken. GCS was appointed as the Environmental Control Officer (EO) during the construction period of the Mine. The visits were schedule for once a month; the Mine having appointed internal ECOs for the remainder of the time.	-	3	3	No further recommendations.	-



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Recording and Reporting to the Department							
29	The holder of the authorisation must submit an environmental audit report to the Department on request and it must be compiled by an independent auditor to avoid biasness.	The Licence Holder is aware of this condition. The licence holder has submitted the annual audits to the Departments although no requests were received.	Environmental Audit Report, December 2018. Proof of Submission, January 2019	T/N	T/N	No recommendation.	-
Commissioning of activity:							
30	Seven days written notice must be given to the Department that the activity will commence. Commencement for purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.	No notification was given to the DMR or NCDENC in this regard. This condition will remain non-compliant.	Site observations.	0	3	The Licence Holder should ensure to review the content of all Environmental Authorisations when received and report on all requirements in the authorisation.	SHEQ Department
31	Any waste generated during construction and operation phases must be disposed of at the waste disposal site licensed for such waste.	All domestic waste is disposed of at the licenced landfill site on the Mine. All other wastes are disposed of at licenced landfill sites such as PPC for the treatment of oils and Holfontein for hazardous waste. In terms of the safe disposal certificates: * PPC Lime Acres, is a member of the National Oil Recycling Association of South Africa (NORA-SA) (31 Aug 2019); * PPC Lime Acres has an Atmospheric Emissions Licence (AEL) in place, Ref: 23/4/2/58. allowing the facility to use used oil as a partial replacement for coal. * Olegra Oil (Pty) Ltd (Olegra) responsible for used oil removal is also a member of NORA-SA with a membership that has expired on 31 August 2019. * Transportation of dangerous goods registrations are available for the vehicles used by Olegra. These are valid until 19 June 2020. * Oily rags and greases are removed by EnviroServ, the registration certificate as a hazardous waste transporter available in the file expired on 13 July 2019. The Mine has however replaced this contract with the services of Interwaste (Pty) Ltd (Interwaste). * Due to operational issues no recycling activities (previously undertaken by M-SHEX Recycling in Kathu) have taken place since February 2019. (The most recent available records are dated February 2019.) No WMLs or registrations are available. * Bidvest Steiner removes the She bins which are taken	PPC Lime Acres NORA-SA Membership No RF025185 Olegra NORA-SA Membership No RF025185 Various registrations from the Directorate: Community Services Emergency Services for Olegra Lime Acres AEL: 23/4/2/58 EnviroServ Waste Management Ref GPT-00-057 (valid until 13 July 2019)	1	3	The up to date and valid registration certificates of waste transporters should be available on file. The Waste Management Licences must be obtained from companies who dispose of waste at landfill, such as Holfontein.	SHEQ Department



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		<p>to Kuruman, where after Compass Waste Services (Pty) Ltd (Compass) removes these for safe disposal. No safe disposal certificates are in place for Bidvest Steiner or Compass on site and the latest records are not available on site.</p> <p>Safe disposal certificates are available for PPC Lime Acres. This includes the manifest which indicates the volumes removed and the percentage water. Should the percentage water be too high, the end user is required to dispose of it at an alternative site as the oil cannot be separated for use.</p> <p>The manifests for the removal of water from the site by EnviroServ is available. Safe disposal certificate from Holfontein Hazardous Waste disposal Facility (Holfontein) is obtained from the facility. This contract with the services of Interwaste.</p> <p>Safe disposal certificates are available for PPC Lime Acres. This includes the manifest which indicates the volumes removed and the percentage water. Should the percentage water be too high, the end user is required to dispose of it at an alternative site as the oil cannot be separated for use.</p> <p>The manifests for the removal of water from the site by EnviroServ is available. Safe disposal certificate from Holfontein is obtained from the facility.</p>					
32	All hazardous waste (oils, effluent from corrosion protection activities) must be disposed of at the registered site.	<p>In terms of oil removal:</p> <ul style="list-style-type: none"> * PPC Lime Acres, is a member of the National Oil Recycling Association of South Africa (NORA-SA) (expired 31 Aug 2019); * PPC Lime Acres has an Atmospheric Emissions Licence (AEL) in place, Ref: 23/4/2/58. allowing the facility to use used oil as a partial replacement for coal. * Olegra Oil (Pty) Ltd (Olegra) responsible for used oil removal is also a member of NORA-SA with a membership that has expired on 31 August 2019. * Transportation of dangerous goods registrations are available for the vehicles used by Olegra. These are valid until 19 June 2020. * Oily rags and greases are removed by EnviroServ, the registration certificate as a hazardous waste transporter available in the file expired on 13 July 2019. The Mine has however replaced this contract with the services of 	<p>PPC Lime Acres NORA-SA Membership No RF025185</p> <p>Olegra NORA-SA Membership No RF025185</p> <p>Various registrations from the Directorate: Community Services</p> <p>Emergency Services for Olegra</p> <p>Lime Acres AEL: 23/4/2/58</p> <p>EnviroServ Waste Management Ref GPT-00-057 (valid until 13 July 2019)</p>	2	3	The up to date and valid registration certificates of waste transporters should be available on file.	SHEQ Department



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		<p>Interwaste (Pty) Ltd (Interwaste). * Due to operational issues no recycling activities (previously undertaken by M-SHEX Recycling in Kathu) have taken place since February 2019. (The most recent available records are dated February 2019.) No WMLs or registrations are available..</p> <p>Safe disposal certificates are available for PPC Lime Acres. This includes the manifest which indicates the volumes removed and the percentage water. Should the percentage water be too high, the end user is required to dispose of it at an alternative site as the oil cannot be separated for use. The manifests for the removal of water from the site by EnviroServ is available. Safe disposal certificate from Holfontein Hazardous Waste disposal Facility (Holfontein) is obtained from the facility.</p> <p>Safe disposal certificates are available for PPC Lime Acres. This includes the manifest which indicates the volumes removed and the percentage water. Should the percentage water be too high, the end user is required to dispose of it at an alternative site as the oil cannot be separated for use.</p> <p>The manifests for the removal of water from the site by EnviroServ is available. Safe disposal certificate from Holfontein is obtained from the facility.</p>					
33	It is recommended that no threatened or protected species should be destroyed. Fauna and flora (including protected or endemic species) relocation or destruction should only be done if there is authorisation by the Department of Water Affairs and Forestry and directorate of the Department of Tourism Environment and Conservation.	All aloes have been relocated during the TFR Diversion project. Any other species are handled in terms of the tree removal permits.	Site observations.	3	3	No further recommendations.	-
34	Should protected trees and other vegetation be destroyed, relocated and/or disturbed, permits must be obtained from the Department of Water Affairs and Forestry and Department of Tourism, Environment and Conservation.	Tree removal permits have been obtained for all clearance activities.	Site observations.	3	3	No further recommendations.	-



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35	Should any archaeological artefacts, graves or protected and endangered biota be found on site, the operation must be suspended and construction should only continue after consultation with SAHRA.	A heritage assessment was undertaken as part of the 2005/2006 studies and again for the 2018 EIA Process.	Site observations.	T/N	T/N	No further recommendations.	-
36	Toilet facilities must be provided for all workers.	Compliant.	Site observations.	3	3	No further recommendations.	-
37	Relevant Occupational Health and Safety Standards should be observed at all times.	No areas of concern were observed during the site visit.	Site observations.	3	3	No further recommendations.	-
38	The safety of participants must be ensured by:						
38,1	Involving qualified engineering in the design and erection and installation of railway diversion and local railway siding.	Compliant, Hatch was appointed to undertake the implementation of the TFR River Diversion.	Site observations.			No further recommendations.	-
38,2	Having regular safety inspections and ensuring participants are equipped with necessary safety equipment.	Areas in the Mine are divided into Workshops, Wash bays, Plant and Mining. Checklists are available for each of these areas. Environmental Officers are appointed for the Bruce, King and Parson Load-Out Facilities. Monitoring schedules are in place for each of these sites, planned a year ahead. In terms of the checklists, the mining checklists make specific reference to "any rehabilitation currently in progress and conducted correctly/according to the EMPr".	Inspection checklists for Environmental (available at Durelle Carstens). Environmental Audit Reports, 2019.	3	3	No further recommendations.	-
39	The construction process must ensure that the necessary safety signage and personal protective clothing is in place. The regulations pertaining to the Occupational Health and Safety Act must be adhered to at all times.	No construction activities are currently undertaken.	Site observations.	NLR	NLR	No further recommendations.	-
40	Access roads to the construction site must be watered regularly to mitigate the dust impacts.	No construction activities are currently undertaken.	Site observations.	NLR	NLR	No further recommendations.	-
41	Disturbed areas must be rehabilitated progressively to minimize total open area.	Construction activities were limited to the demarcated areas. No areas of concern were observed during the site visit.	Site observations.	NLR	NLR	No further recommendations.	-
42	Noise generation during construction must be mitigated by ensuring that all regulations relating to noise generation are observed and be restricting work to normal working hours.	No construction activities are currently undertaken.	Site observations.	NLR	NLR	No further recommendations.	-



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43	All machines must be equipped with appropriate noise reduction equipment and all vehicles must be roadworthy.	No construction activities are currently undertaken.	Site observations.	NLR	NLR	No further recommendations.	-
44	Proper road signage must be strategically placed in the area of the construction site.	No construction activities are currently undertaken.	Site observations.	NLR	NLR	No further recommendations.	-
45	No vehicle or construction machinery may be extensively repaired on site.	No construction activities are currently undertaken.	Site observations.	NLR	NLR	No further recommendations.	-
46	Mixing of concrete in areas where excess material could enter drainage systems must be avoided.	No construction activities are currently undertaken.	Site observations.	NLR	NLR	No further recommendations.	-
Operation of the activity:							
47	The railway diversion and local railway siding must be well maintained and kept in good order at all times.	No areas of concern were observed during the site visit.	Site observations.	3	3	No further recommendations.	-
48	All proposed mitigations for the Operational Phase as outlined on the EIR must be implemented.	Please refer to the outcomes of this audit.	2019 Environmental Audit Report	T/N	T/N	No further recommendations.	-
49	General waste must be transported and disposed of at the registered waste disposal site.	General Waste is disposed of at the licensed facility on site.	12/9/11/L812/8) - March 2010	3	3	No further recommendations.	-
50	All hazardous substances spillages must be reported to the DWA within 48 hours of the incident.	<p>No reportable incident has been recorded on site in terms of the site interviews. No major spills have taken place, however ongoing spills have been present in areas such as the Load-Out Benetec System and the STPs.</p> <p>Based on site observations, an incident was observed at the Benetec Plant at the Load-Out Facility during 2017, which has not been addressed and was still present during the 2019 audit. The facility has been overflowing for an extended time (beyond the bund wall), with a well-established 'swamp' system with aquatic life already present. The water from this system should be used for dust suppression on the conveyor systems, but based on 2017/2018 on-site interviews, the product received from the Plant is already too wet and additional water cannot be added without compromising the product. The facility received water from the treated sewage water. No water quality data is currently available to determine the nature of the water which has spilled beyond the bunded areas. The SHEQ Department was not informed of this incident during the previous audit, and for the current audit, was not aware</p>	Site observations.	1	3	<p>Reporting in terms of Environmental Incidents require revision to ensure that the required reporting is undertaken.</p> <p>The upgrade of the system to send excess water to the proposed area behind the Load-Out Workshop should be implemented urgently.</p> <p>The area around the Benetec System should be remediated.</p> <p>The discharges of the STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these should be actioned for clean up or maintenance.</p>	SHEQ Department



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		<p>of the status quo.</p> <p>According to site interviews, upgrades are planned to reroute sewage water to the JoJo tanks behind Load-Out Workshop, which will reduce the volume off water send to the Benetec system.</p> <p>The STPs on site are presenting concerns in terms of dirty water management and discharges:</p> <ul style="list-style-type: none"> * At the Bruce STP, a spill is present outside a manhole of the facility with an odour present in this area. Discharge of the treated water takes place through a pipe into a channel to Bruce PCD. This channel is constructed with bricks which is effective for erosion management at the discharge point, but will likely not limit seepage. A poor odour is also present at the channel where the treated sewage discharges, raising concerns in terms of the water quality. * At the King STP at the Workshop, discharge into environment downgradient of the STP was observed with a marshy area created. The treated water should report to the Crusher PCD. In addition to this, the green JoJo tank within the Plant indicates leakage. * At the King Crusher PCD STP, the sump (drying beds) is almost full. The water sump is also very full, with the overall system indication a lack of maintenance and inspections. Discharge of treated water was visible from the system into the open environment. This water should report to the Crusher PCD but is discharged via pipe prior to reaching the dam. A poor odour present in this area, raising concerns in terms of the water quality. The filter box into the sump indicates that it is blocked, with spills present. <p>Water quality results are available to confirm the effectiveness of the STP treatment process. According to the report, Faecal Coliforms are present at the Parson STP, the Parson STP HOD (although this was absent for June and July 2019), the Parson STP HPGR Workshop, Parson Scrap Yard, Bruce STP, Load-Out STP, and at both King STPs According to the DWS Guidelines for domestic drinking water) - a count of more than 20 counts /100ml can cause a significant and increasing risk of infectious disease transmissions. Even when considering the guidelines for irrigation the target water quality is 1 count /100ml; above this there is a likelihood of</p>				



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		contamination of crops and pastures and water treatment is required.					
51	Effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from site to an approved waste disposal site, licensed for such waste.	Hazardous Waste and Oils are removed by Interwaste or Olegra, respectively and safe disposal certificates are in place.	Site observations and verification of manifests.	3	3	No further recommendations.	-
52	Spills must be cleaned up and managed effectively to ensure that groundwater does not become contaminated.	<p>Projects are currently in place to surface larger areas at the Workshops. Maintenance areas have been increased.</p> <p>The following observations were made during the site visit:</p> <ul style="list-style-type: none"> * At the King Refuelling Bay, oil spills are present outside of the bunded areas and a fuel spill is present at the pump area in the fourth sump and this is not contained. In addition to this, the sump between the area 1 and 2 filling pump indicates overflow. * At the Loading Equipment Workshop, diesel drums are stored outside of bunded areas. Hazardous skips are present, but not contained on bunded or concreted areas and with no roof or covering. * At the Bulk Diesel Storage area at King, hydrocarbons are present around the hazardous waste skip indicating a leaking skip; this skip is not covered or contained. * At the King Salvage area, diesel drums are stored, but not contained but on a surfaced area and with no bund present. * At the Bruce Salvage Yard, the hydrocarbon and battery storage areas is located on a surfaced area but not bunded. Hazardous bins are also placed on an unlined area. * At the Bruce Bulk Diesel Bay, hazardous skips are present at the parking area, has waste mixing present, are not in a contained area and have no lids present. The hazardous bund skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure takes place. The oil separator indicates spills on the brick paving. During the summer, the oil separator pumps sometimes fail and overflow – proof of this was visually present on site. This was reported to the Mine to fix based on the on-site inspections. * At the Bruce Workshop, spills are currently present around the contaminated soil buckets. Castrol drums 	Site observations.	0	3	<p>Containment measure must be implemented at all areas where diesels are stored.</p> <p>It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.</p> <p>The upgrade of the system to send excess water to the proposed area behind the Load-Out Workshop should be implemented urgently.</p> <p>The area around the Benetec System should be remediated.</p> <p>The discharges of the STPs should be linked to the PCDs to avoid general discharge.</p> <p>Maintenance and regular inspections of the STPs should be undertaken and where concerns are observed, these should be actioned for clean up or maintenance.</p>	SHEQ Department



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		<p>are stored in uncontained areas; these are full. In this area there is a large presence of grease and oils spills. * At the Load-Out Transnet Workshop, some spills around the Drizit system are not contained.</p> <p>Based on site observations, an incident was observed at the Benetec Plant at the Load-Out Facility during 2017, which has not been addressed and was still present during the 2019 audit. The facility has been overflowing for an extended time (beyond the bund wall), with a well-established 'swamp' system with aquatic life already present. The water from this system should be used for dust suppression on the conveyor systems, but based on 2017/2018 on-site interviews, the product received from the Plant is already too wet and additional water cannot be added without compromising the product. The facility received water from the treated sewage water. No water quality data is currently available to determine the nature of the water which has spilled beyond the bunded areas. The SHEQ Department was not informed of this incident during the previous audit, and for the current audit, was not aware of the status quo.</p> <p>The STPs on site are presenting concerns in terms of dirty water management and discharges: * At the Bruce STP, a spill is present outside a manhole of the facility with an odour present in this area. Discharge of the treated water takes place through a pipe into a channel to Bruce PCD. This channel is constructed with bricks which is effective for erosion management at the discharge point, but will likely not limit seepage. A poor odour is also present at the channel where the treated sewage discharges, raising concerns in terms of the water quality. * At the King STP at the Workshop, discharge into environment downgradient of the STP was observed with a marshy area created. The treated water should report to the Crusher PCD. In addition to this, the green JoJo tank within the Plant indicates leakage. * At the King Crusher PCD STP, the sump (drying beds) is almost full. The water sump is also very full, with the overall system indication a lack of maintenance and inspections. Discharge of treated water was visible from the system into the open environment. This water should report to the Crusher PCD but is discharged via</p>				



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		pipe prior to reaching the dam. A poor odour present in this area, raising concerns in terms of the water quality. The filter box into the sump indicates that it is blocked, with spills present.					
53	There must be procedures in place for the regular inspection and maintenance of the railway diversion and the local railway siding.	Schedules are in place to undertake the general inspections on site. The inspections are based on risk determined by the responsible person (Dirk Coetzee) with focus on the EMP. Similar to the 2016 audit, it was derived that the river diversion, railway lines and Transnet Workshop do not form part of the inspection schedules.	Site observations.	1	3	The railway lines and Transnet Workshops on site should form part of the inspection lists.	SHEQ Department
54	To ensure that environmental degradation is prevented possible measures should be put in place so that impacts arising from operation are mitigated.	In order to ensure that the Mine does not have detrimental impact on the surrounding environments, various ecological studies are undertaken. A biodiversity study was conducted by SAS in 2012. Ongoing updates are undertaken with the 2017 and April 2019 Biodiversity Studies by EnviroSwift (Pty) Ltd (EnviroSwift). The 2019 report states that eight points for continued vegetation monitoring were selected within the mine surface rights area by SAS in 2012 (Vegetation Monitoring Points 1-8), and an additional four monitoring points were selected by EnviroSwift in 2019 (Vegetation Monitoring Points 9-12).	Tree Removal Permit 0012/2017. Licence: NCU 7971117 SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019	3	3	No recommendations.	SHEQ Department
Site closure and Decommissioning:							
55	Should the activity ever cease or become redundant the applicant shall undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at the time.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
56	No alien or invasive species must be introduced during rehabilitation.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
57	All decommissioning phase mitigations outlined in the EMP should be implemented.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
Duration and period of validity							
	The activity(s) must commence within a period of three years from the date of issue. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.	It is uncertain when the activities commenced. No onsite information could be obtained to assess this finding. However, based on Google imagery a large construction area was already in place for the railway line diversion at July 2012.	-	3	3	Construction dates and programmes should be sourced and kept on file for the purposes of audits.	SHEQ Department



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				Compliance Rating	63	78	81%



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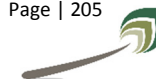
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Table 13: EMP Environmental Audit: 2011 EA for Silos and Diesel Storage (February 2011)

Number/Description	Requirement	Observation	Source Document/Observation	Rate	Target	Recommendation	Responsible person
EMP Requirements							
New Link Road between Parson and Bruce Mine	Not applicable, construction has not commenced.	No activity to assess.	Site observations.	N/A	N/A	No recommendation.	-
Establishment of New Borrow Pits and Expansion of existing Borrow Pits							
Operation Phase							
1	<p>Management Measure: Make optimal utilisation of the borrow material which forms part of the mining rights area.</p> <p>Action Plan: Design drawings will indicate the boundaries of the borrow pit area.</p>	All borrow pits are indicated on site layouts.	2011 EMP	3	3	The purpose of borrow pits should be determined. Where borrow pits will no longer be utilised, rehabilitation plans should be implemented for these.	SHEQ Department
2	<p>Management Measure: Borrow pit areas will be backfilled and rehabilitated.</p> <p>Action Plan: Progressive rehabilitation must take place as soon as possible after each borrow pit has been mined.</p>	<p>Borrow pits are still present on site. At the Plant area, borrow pits have been shaped, but not backfilled.</p> <p>North of the railway siding, water is accumulating into the borrow pits. The source of this water is not understood fully, but it may be a likely result of subsurface drainage from the upgradient storm water dams at Parson.</p> <p>Borrow Pits 3 and 5 north of the railway line, formed part of the application for WUL (submitted in 2011). This application was submitted as the borrow pits would have stored water. This water use was not included into the 2013 WUL and is no longer required for such purpose.</p>	<p>Site observations.</p> <p>2011 WUL application forms.</p>	1	3	<p>The purpose of borrow pits should be determined. Where borrow pits will no longer be utilised rehabilitation plans should be implemented for these.</p> <p>The Mine should regularly test the quality of the water in the borrow pits to the north of the railway line and determine whether this is clean water or whether this may be seepage water from the PCDs.</p> <p>Depending on the need of the borrow pits north of the railway line, the requirement for WUL should be assessed.</p>	SHEQ department
3	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in</p>	<p>This is being undertaken by means of the IsoMetrix system, all observations identified during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental Department.</p> <p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King</p>	Site observations.	3	3	It is recommended that the planning meetings for all areas must be used to present the outcomes of monitoring and present possible causes and actions.	SHEQ Department



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	<p>consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Action Plan: The incident management system will be communicated to all construction teams and contractors. The environmental requirements</p>	<p>and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness. Based on the findings observed on site, specifically relating to water management, it is clear that the Mine is aware of the requirements of water conservation and management, and that ongoing actions are raised and activities implemented, such as the current upgrades in terms of the water containment facilities and channels on site.</p>					



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	on site will be communicated to all contractors and will be included in contractual conditions.						
4	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.</p> <p>Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the</p>	<p>This is being undertaken by means of the IsoMetrix system, all observations identified during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental Department.</p> <p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p> <p>Based on the findings observed on site, specifically relating to water management, it is clear that the Mine is aware of the requirements of water conservation and management, and that ongoing actions are raised and activities implemented, such as the current upgrades in terms of the water containment facilities and channels on site.</p>	Site observations.	Dup	Dup	It is recommended that the planning meetings for all areas must be used to present the outcomes of monitoring and present possible causes and actions.	SHEQ Department



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	<p>Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Action Plan: The incident management system will be communicated to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
5	<p>Management Measure: Clean and dirty water separation structures to be put in place as indicated in the SWMP. Construct storm water berms around the borrow pits and along the boundary of the pit extent. These berms will serve as a water divide that will keep water away from the pit.</p> <p>Action Plan: Ensure that all design drawings include effective erosion control measures. Draw up a surface water monitoring programme to prevent, manage and monitor potential erosion. Construct the required erosion protection measures. Ensure the required erosion protection measures are maintained. Ensure the required erosion protection measures are monitored and corrected where necessary.</p>	<p>Borrow pits are still present on site. At the Plant area, borrow pits have been shaped, but not backfilled.</p> <p>North of the railway siding, water is accumulating into the borrow pits, the source of this water is not understood fully, but it may be a likely result of subsurface drainage from the up gradient storm water dams at Parson. No storm water management systems are present around these areas.</p>	<p>Site observations.</p> <p>2011 WULA forms.</p>	1	3	<p>The purpose of borrow pits should be determined. Where borrow pits will no longer be utilised rehabilitation plans should be implemented for these.</p> <p>The Mine should test the quality of the water in the borrow pits to the north of the railway line and determine whether this is clean water or whether this may be seepage water from the PCDs.</p> <p>Depending on the need of the borrow pits north of the railway line, the requirement for a WUL should be assessed.</p> <p>The required clean and dirty water separation measures should be implemented around the borrow pits.</p>	SHEQ Department



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6	<p>Management Measure: There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for</p>	Same condition as #3	-	Dup	Dup	No further recommendation.	-



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	the Emergency Procedures and Responses. Action Plan: The incident management system will be communicated to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.						
7	<p>Management Measure: Where possible, topographical alteration will be designed to take the natural topography of the area into account.</p> <p>Thorn trees and indigenous shrubs will be planted along the borrow pits to act as a visual screen.</p> <p>Action Plan: Design drawings will indicate the boundaries of the operation area.</p>	Borrow pits are still present on site and not in use. At the Plant area, borrow pits have been shaped, but not backfilled or vegetated in line with this condition.	Site observations.	0	3	<p>The purpose of borrow pits should be determined. Where borrow pits will no longer be utilised rehabilitation plans should be implemented for these.</p> <p>Rehabilitation practices should be identified for each of the borrow pits on site. Where this is not relevant the purpose of the facilities should be formalised.</p>	SHEQ Department
Storm water Dams							
Operation Phase							
1	<p>Management Measure: The storm water dams must be able to handle the 1:100-year flood events.</p> <p>No water will be released directly into the environment from the dams.</p> <p>The storm water dams will be inspected on a weekly basis.</p> <p>The seasonally wet portions of the dams and the sump will be lined with concrete.</p> <p>Action Plan: The design of the storm water dams must allow for 1:100 year flood events.</p>	<p>Seepage collection is undertaken at the Paste Disposal Facility but not at the Storm Water Dams. These dams have however been constructed in terms of approved designs.</p> <p>The intention of the Storm Water Dams is to be operated as empty - i.e. water circulation is to be implemented. Pumps are in place at the Bruce and Parson Storm Water Dams, but the reuse and circulation are not optimised and water volumes beyond the concrete sumps are present, and therefore such water is not contained and will seep into subsurface. Designs have been finalised to allow for the improved water circulation and infrastructure in these areas to optimise water return.</p> <p>At the Load-Out Storm Water Dam, a pump is present but is not connected to the internal infrastructure to allow for the recirculation of water. A dust suppression tap-off point has been constructed to the southwest of the facility but is not linked thereto. The dam is also not constructed in such a way to channel water to the contained area in a formalised manner, and the presence of long-term ponding is observed below the discharge point of the concrete channels, south of the concrete sump. It should further be noted that the approved layout of the Storm</p>	Site observations. Water Quality Result, July 2019	1		<p>The water studies and designs must be included into the pending WULA and submitted to the DWS.</p> <p>The design of the King Crusher Dam should be investigated by an engineer.</p> <p>The upstream catchment's routing of water should be investigated to ensure that the water enters the required dam system.</p> <p>Where water flows down the conveyor path, it is recommended that a pump be implemented within the first depression (this area should be formalised for such purpose) to pump water back to the Storm Water Dam.</p>	SHEQ & Engineering Department



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		<p>Water Dam is different from that approved in the WUL - although the dam has been constructed in an old borrow pit, only a portion of this pit was approved for water storage in terms of submitted designs. The change in the design resulted in the construction of the Third-Party Load-Out Facility which encroached into the borrow pit area. The design has been re-assessed by Mr. Bruce Randell and has been included into the new WULA to be submitted to the DWS.</p> <p>A repeat finding is observed north of the railway siding where water is accumulating into the borrow pits. The source of this water is not understood fully, but it may be a likely result of subsurface drainage from the upgradient Storm Water Dams at Parson. Water in the borrow pits has been analysed on 3 July 2018, and no exceedances in terms of 2008 WUL, except for Fluoride (F), Nitrate (NO₃), and pH, were recorded. The previous audit report required that further investigation must be undertaken to determine the external source to this pit.</p> <p>At the King Crusher Dam various concerns were observed relating to the design of the facility. The observations are a repeat of the 2017 and 2018 audit, and relates to the channelling of water into the dam. No defined channel has been designed to channel water into the settling sump of the King Crusher Dam, resulting in various erosion gulleys forming, which leads to uncontrolled water entering into the dam and storm water not entering the dam as required. Water from the crusher stockpile makes its way down the conveyor route and ponds at the first depression beneath the culvert.</p> <p>At the King New Stockpile PCD, a repeat finding was noted with the channels leading to this facility not being lined and the culvert into the dam being blocked with vegetation growth. Projects are currently underway to upgrade the Parson PCDs, as well as improving the lining of the channels in and around the Plant.</p>				<p>The road upgradient of the King Crusher Dam should be equipped with fit for purpose erosion measures to manage the formation of erosion gulleys along this linear infrastructure, which is also a stability concern.</p> <p>The source of water into the borrow pits north of the railway line should be identified.</p>	
2	<p>Management Measure: The storm water dams must be able to handle the 1:100 year flood events.</p> <p>No water will be released directly into the environmental from the dams.</p> <p>The storm water dams will be inspected on a weekly basis.</p> <p>The seasonally wet portions of the dams and the sump will be lined</p>	<p>Storm Water Dams or the PCDs are monitored on a monthly basis and not a weekly basis as per the EMP. The approved WUL requires monthly monitoring of the facilities containing wastewater.</p>	<p>WUL: 10/D411/BC11/2122 (16 March 2013)</p>	TBA	TBA	<p>It is recommended that this condition be amended to allow the mine to monitoring surface and groundwater resources in line with the approved EMP. This will be a Regulation 29 Part 1 amendment as it is a pure administrative amendment.</p>	<p>SHEQ Department</p>



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	with concrete. Action Plan: The storm water dams will be monitored on a weekly basis. This will be included in the monitoring schedule. Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.						
3	Management Measure: The storm water dams must be able to handle the 1:100-year flood events. No water will be released directly into the environmental from the dams. The storm water dams will be inspected on a weekly basis. The seasonally wet portions of the dams and the sump will be lined with concrete. Action Plan : The storm water dams will be monitored on a weekly basis. This will be included in the monitoring schedule. Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.	During the site visit the following was observed in terms of findings relating to poor water management: * The intention of the Storm Water Dams is to be operated as empty - i.e. water circulation is to be implemented. Pumps are in place at the Bruce and Parson Storm Water Dams, but the reuse and circulation are not optimised and water volumes beyond the concrete sumps are present, and therefore such water is not contained and will seep into subsurface. Designs have been finalised to improved water circulation and infrastructure in these areas to optimise water return. During the site visit large volumes of water were present in the Parson Plant PCD. No sump is present at the King PCDs. Groundwater is monitored in line with the WUL.	Site observations.	TBA	TBA	The King PCDs should be designed to incorporate a sump area as well. It is recommended that this condition be amended to allow the mine to monitoring surface and groundwater resources in line with the approved EMP. This will be a Regulation 29 Part 1 amendment as it is a pure administrative amendment.	Engineering Department
4	Management Measure: Khumani will establish and implement a regular weed control programme to eradicate existing invader plants and to prevent new invasions during ongoing opencast mining operation and decommissioning. Local people will be involved in the weed-control programme. Action Plan: Update the eradication, spread prevention as well as monitoring plan of invader species. Implement the weed eradication plan and monitor the area. Update the on-going rehabilitation	In order to ensure that the Mine does not have detrimental impact on the surrounding environments, various ecological studies are undertaken. A biodiversity study was conducted by SAS in 2012. Ongoing updates are undertaken with the 2017 and April 2019 Biodiversity Studies by EnviroSwift (Pty) Ltd (EnviroSwift). The 2019 report states that eight points for continued vegetation monitoring were selected within the mine surface rights area by SAS in 2012 (Vegetation Monitoring Points 1-8), and an additional four monitoring points were selected by EnviroSwift in 2019 (Vegetation Monitoring Points 9-12). According to the 2019 BAP Update by EnviroSwift, it is the opinion of the specialist that no significant alteration of, or impact to, the vegetation communities associated with Vegetation Monitoring Points 1, 2, 3, 4, 5, 6, 7 and 8 has occurred as a result of mining related activities since the 2017 survey. Changes in vegetation community structure encountered at the time of the 2019 survey	SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019 Site observations.	1	3	In the area in the vicinity of Vegetation Monitoring Point 1 specifically, the removal of the alien species, with special mention of <i>Cirsium vulgare</i> and <i>Argemone ochroleuca</i> , must take place in order to comply with existing legislation (NEMBA Alien and Invasive Species Regulations, GN R598 of 2014). <i>Laggera decurrens</i> , an annual weed, must also be controlled. These species must be removed from the Gamagara River. In the area in the vicinity of Vegetation Monitoring Point 3 specifically, the encroachment of	SHEQ Department



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	programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.	are presumably as a result of the prevailing dry climatic conditions. These unfavourable conditions have resulted in the dormancy of grass species and in an increase in the diversity of drought tolerant/pioneer forb and shrub species. However, no additional alien and invasive species have colonised the areas and no significant bush encroachment was encountered. The report further states that the only monitoring point in which a significant change in vegetation structure was encountered was Vegetation Monitoring Point 2. The dry conditions and apparent overgrazing of the riverine vegetation has resulted in a decrease in grass cover since the 2017 survey and in the proliferation and dominance of annual weeds such as <i>Laggera decurrens</i> . However, should grazing within this area be managed and should alien and invasive plant species be removed, the vegetation should recover after sufficient rainfall. When considering the area where the river diversion is present, Vegetation Monitoring Points 6, 7 and 9 are the most relevant, together with Vegetation Monitoring Point 2 on the Gamagara floodplains to the north of Parson, with no to limited mining activities (conveyor crossings) taking place. During the site visit various areas with alien invasive species encroachment were present				<i>Senegalia mellifera</i> subsp. <i>detinens</i> and the resultant competition of this species with grasses and forbs causes a decrease in overall floral species diversity and a decrease in the overall grazing carrying capacity of the veld. The unnatural proliferation of <i>S. mellifera</i> subsp. <i>detinens</i> within the surface rights area in general must therefore be controlled. Advice must be sought from an experienced contractor in order to manage the proliferation of this species, particularly within areas to the northeast of Vegetation Monitoring Point 3. In general, the Licence Holder should continue to monitor the area in order to ensure that alien and invasive species do not encroach into the vegetation.	
Increase of Diesel at Bruce							
Increase of Diesel at Bruce	No construction activities to assess.	No activity to assess.	Site observation	N/A	N/A	No recommendation.	-
Operational phase							
1	Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order. All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas. All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored. Spill kits will be available at all areas where hydrocarbons are utilised. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated	Pre-start checklists are being implemented for all mine vehicles. No areas of concern were observed around the generators. In terms of the storage of chemicals and contaminants the following were observed: * At the King Laydown area, littering is present. Dustbins are provided but not in use. * At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently bunded. * At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed.	Site observations.	1	3	It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.	SHEQ Department



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	<p>area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. A rapid response team should be available on 24-hour notice to deal with hazardous spills. A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced. If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Action Plan: A vehicle maintenance and monitoring programme will be developed and implemented. Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on</p>	<ul style="list-style-type: none"> * At the King Loading Equipment Workshop, hazardous skips are present, not contained on bunded or concreted area and have no roof or covering. * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained. * At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not bunded. Hazardous bins are placed on an unlined area. Some drums are stored outside bunded areas. * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present. * At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted. * At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills. * At the TMM Workshop at Bruce, hazardous skips are present with no lids. * At the Transnet Workshop, the hazardous waste bin filled with domestic waste. * At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing. * Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints. * At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included: <ul style="list-style-type: none"> * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed). 					



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	<p>site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised.</p> <p>Brief all employees on the location of the MSDS and how this should be utilised.</p> <p>Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people working on site.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p> <p>The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.</p>	<p>MSDSs are available on site.</p> <p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p>					
3	<p>Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order. All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas.</p> <p>All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored.</p> <p>Spill kits will be available at all areas where hydrocarbons are utilised.</p> <p>Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated</p>	<p>Pre-start checklists are being implemented for all mine vehicles.</p> <p>No areas of concern were observed around the generators.</p> <p>In terms of bunds the following were observed: at the bulk diesel storage areas: * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip indicating a leaking skip. This skip is also not covered or contained. * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present. * At the Bruce Bulk Diesel Storage Area, the hazardous bund skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure takes place.</p> <p>MSDSs are available on site.</p> <p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and</p>	Site observations.	1		It is recommended that an overall inspection be made of each area, its hazardous material storage requirements, available bund, labelling of the bund capacity and actions on improvement.	SHEQ Department



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	<p>area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>A rapid response team should be available on 24-hour notice to deal with hazardous spills.</p> <p>A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced.</p> <p>If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate.</p> <p>If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Action Plan: A vehicle maintenance and monitoring programme will be developed and implemented.</p> <p>Ensure the Material Safety Data</p>	<p>hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p> <p>The Mine also has a fire department who responds to incidents and fires.</p> <p>No major incidents have taken place on site during the past year.</p>					

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	<p>Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised.</p> <p>Brief all employees on the location of the MSDS and how this should be utilised.</p> <p>Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people working on site.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p> <p>Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.</p> <p>The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.</p>						
4	<p>Management Measure: There shall be an emergency preparedness plan in place in order to fight accidental fires should they occur. The adjacent landowners/users/managers should also be informed and/or involved. The induction and awareness programmes will address fire related issues. There must be sufficient firefighting equipment. This equipment must fulfil the South African Occupation Health and Safety requirements.</p>	<p>An Emergency Response Programme specifically for fire prevention and management is in place.</p> <p>No vegetation is present around the bunk fuel storage areas.</p>	<p>Mandatory Code of Practice for preventing fires on mines (dated 29 March 2019).</p>	3	3	No recommendation.	-



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	<p>All vegetation adjacent to the fuel storage tanks will be continually removed. All provisions relating to fire safety will be related during the induction and awareness training programme. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Action Plan: Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p>						
5	<p>Management Measure: There shall be an emergency preparedness plan is in place in order to fight accidental fires should they occur. The adjacent landowners/users/managers should also be informed and/or involved. The induction and awareness programmes will address fire related issues. There must be sufficient firefighting equipment. This equipment must fulfil the South African Occupation Health and Safety requirements. All vegetation adjacent to the fuel storage tanks will be continually removed. All provisions relating to fire safety will be related during the induction and awareness training programme. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Action Plan: Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p>	<p>An Emergency Response Programme specifically for fire prevention and management is in place.</p> <p>No vegetation is present around the bunk fuel storage areas.</p>	<p>Mandatory Code of Practice for preventing fires on mines (dated 29 March 2019).</p>	Dup	Dup	No recommendation.	-
Addition Silos for Explosives							
Addition Silos for Explosives	No construction activities to assess.	No activity to assess.	Site observations.	N/A	N/A	No recommendation.	-



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Operational phase							
1	<p>Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order. All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas. All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored. Spill kits will be available at all areas where hydrocarbons are utilised. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. A rapid response team should be available on 24-hour notice to deal with hazardous spills. A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced. If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate. If any other minor spillage occurs the spillage will be cleaned</p>	<p>The Silo area is well managed and secured.</p> <p>An Emergency Response Programme specifically for fire prevention and management is in place.</p> <p>Pre-start checklists are being implemented for all mine vehicles.</p> <p>In terms of this the following were observed: * At the King Laydown area, littering is present. Dustbins are provided but not in use. * At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently bunded. * At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed. * At the King Loading Equipment Workshop, hazardous skips are present, not contained on bunded or concreted area and have no roof or covering. * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained. * At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not bunded. Hazardous bins are placed on an unlined area. Some drums are stored outside bunded areas. * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present. * At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted. * At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills. * At the TMM Workshop at Bruce, hazardous skips are present with no lids. * At the Transnet Workshop, the hazardous waste bin filled with domestic waste.</p>	Site observations.	Dup	Dup	No recommendation.	-



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	<p>immediately and the contaminated area will be rehabilitated, as appropriate. Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Action Plan: A vehicle maintenance and monitoring programme will be developed and implemented. Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised. Brief all employees on the location of the MSDS and how this should be utilised. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions. The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables</p>	<p>* At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing. * Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints. * At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included: * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed). MSDSs are available on site. Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills. The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p>					

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	4-4 to 4-6, Section 4.10 of the EMP.						
2	Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order. All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas. All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored. Spill kits will be available at all areas where hydrocarbons are utilised. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. A rapid response team should be available on 24-hour notice to deal with hazardous spills. A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced. If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.	A designated maintenance programme is in place.	Site observations.	Dup	Dup	Decommissioning and reconstruction should only take place with the relevant Environmental Authorisations in place.	SHEQ Department



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	<p>Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the goodhousekeeping practices. Surface water will be monitored in accordance with the provisions outlined in Section 5.1of the EMP.Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.Action Plan: A vehicle maintenance and monitoring programme will be developed and implemented. Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons andchemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised.Brief all employees on the location of the MSDS and how this should be utilised.Ensure the Emergency Preparedness and Response Programme is updated annually.Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.The incident management system will be communicated to all people working on site.The environmental requirements on site will be communicated to all contractors and will beincluded in contractual conditions.Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.The handling, storage and disposal of hazardous chemical substances will be in</p>						

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	accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.						
3	<p>Management Measure: All vehicles transporting fuel and generators will be serviced regularly and will be kept in good working order. All chemicals, contaminated water and/or hydrocarbons will be stored in designated areas. All materials presenting a potential contamination threat will be stored in an area with a bunded capacity of 110% of the volume stored. Spill kits will be available at all areas where hydrocarbons are utilised. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. A rapid response team should be available on 24-hour notice to deal with hazardous spills. A procedure for the storage, handling and transportation of the different hazardous materials has been drawn up for the mine and must be strictly enforced. If a major spillage occurs the supplying contractor or area supervisor will be called out to clean the contaminated area and rehabilitated the soils, as appropriate. If any other minor spillage occurs</p>	<p>The Silo area is well managed and secured.</p> <p>An Emergency Response Programme specifically for fire prevention and management is in place.</p> <p>Pre-start checklists are being implemented for all mine vehicles.</p> <p>The following were observed: * At the King Laydown area, littering is present. Dustbins are provided but not in use. * At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently bunded. * At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second days of the audit various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed. * At the King Loading Equipment Workshop, hazardous skips are present, not contained on bunded or concreted area and have no roof or covering. * At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip, indicating a leaking skip; this skip is also not covered or contained. * At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not bunded. Hazardous bins are placed on an unlined area. Some drums are stored outside bunded areas. * At the Bruce Diesel Bay parking area, littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lids present. * At the Bruce Bulk Diesel Storage Area, hazardous bund the skip at the bulk storage area is not contained – seepage through the link between the surface and brick structure was noted. * At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are also full. In this area there is a large presence of grease and oils spills. * At the TMM Workshop at Bruce, hazardous skips are present with no lids. * At the Transnet Workshop, the hazardous waste bin filled with domestic waste.</p>	<p>Site observations. Mandatory Code of Practice for preventing fires on mines (dated 2 July 2019).</p>	Dup	Dup	No recommendation.	-



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	<p>the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will also be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses.</p> <p>Action Plan: A vehicle maintenance and monitoring programme will be developed and implemented.</p> <p>Ensure the Material Safety Data Sheet (MSDS) obtained from the suppliers for all hydrocarbons and chemicals stored and/or utilised on site is updated regularly. All MSDS's must be displayed where hydrocarbons and/or chemicals are stored and utilised.</p> <p>Brief all employees on the location of the MSDS and how this should be utilised.</p> <p>Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people working on site.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	<p>* At the Parson Plant area, the recycling station has three skips that are very full and the hazardous skip indicating waste mixing.</p> <p>* Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints.</p> <p>* At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included:</p> <ul style="list-style-type: none"> * Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and at the entrance where vehicles travel. * Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter. * Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit. * Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside contained areas. * Hazardous waste skips (RoRo bins) were overflowing as EnviroServ has not collected these (although appointed). <p>MSDSs are available on site.</p> <p>Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills.</p> <p>The following ongoing meetings are undertaken on site:</p> <ul style="list-style-type: none"> * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs)); * Environmental Forum Meetings held every 6 months; and * Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness. 					



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	Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.						
1.1 New link road between Parson and Bruce Mine							
1.1.3 Decommissioning phase							
<ul style="list-style-type: none"> • Removal of roads; • Landscaping • Construction vehicles/machinery on site ; and • Contractors/workers on site. 							
Activity: Landscaping							
Topography The removal of the road will result in topographical alterations.	Landscaping must be limited to those areas that require changes for the road. Where possible, topographical alteration will be designed to take the natural topography of the area into account. Design drawings must consider the natural topography of the environment to ensure minimal impact.	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
Surface water The landscaping of the area will restore the natural topography and therefore the natural flow regimes of the area.	Where possible, the natural flow regime of the area will be restored. Landscaping will take the natural flow regimes and topography into account. Design drawings must consider the natural topography of the environment to ensure minimal impact.	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	
Visual The landscaping of the road will remove the visual incongruity	Where possible, landscaping will restore the natural aesthetics of the area. The self-succession of natural vegetation will be encouraged. The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites. Design drawings must consider the	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	



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	natural topography of the environment to ensure minimal impact.						
Fauna The landscaping of the road may impact the safety of local fauna.	The decommissioning areas will be fenced off. Fences will be regularly inspected. Fences will be included in the designs for the road.	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	
Flora The disturbance of the cleared areas may allow the establishment of alien invasive vegetation.	Khumani will establish and implement a regular weed-control programme to eradicate existing invader plants and to prevent new invasions during ongoing opencast mining operation and decommissioning. Local people will be involved in the weed-control programme. Update the eradication, spread prevention as well as monitoring plan of invader species. Implement the weed eradication plan and monitor the area. Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	
Activity: Removal of road							
Topography The removal of the road will result in topographical alterations.	The area from which the existing track is removed (and does not fall within the King opencast pit areas) will be ripped and shaped to follow the natural contours as far as practically possible. Plans for the removal of the track will include landscape restoration.	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	
Soil, land capability and land use The removal of the road will produce waste, which may lead to soil contamination.	A detailed waste management strategy will be established and implemented. The detailed waste management programme will be provided to all construction teams and contractors. The environmental requirements on site will be communicated to all	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	



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	contractors and will be included in contractual conditions.						
Soil, land capability and land use The utilisation of hydrocarbons and other chemicals during the removal phase may lead to the contamination of soils.	<p>There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity</p>	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	



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	to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. The incident management system will be communicated to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.						
Surface water The removal of the road will produce waste, which may lead to surface water contamination.	A detailed waste management strategy will be established and implemented. The detailed waste management programme will be provided to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	
Surface water The utilisation of hydrocarbons and other chemicals during the decommissioning phase may lead to the contamination of surface water.	There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations	T/N	T/N	No further recommendations.	



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	<p>utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. The incident management system will be communicated to all construction teams and contractors.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
<p>Groundwater</p> <p>The utilisation of hydrocarbons and other chemicals during the decommissioning phase may lead to the contamination of groundwater through filtration.</p>	<p>There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the</p>	<p>The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No further recommendations.</p>	



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	<p>implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. The incident management system will be communicated to all construction teams and contractors.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
<p>Visual The removal of the existing road will leave a bare "scar" on the landscape, creating a visual impact.</p>	<p>Natural vegetation will be retained wherever possible.</p> <p>Natural vegetation establishment (self-succession) will be encouraged.</p> <p>The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites.</p> <p>An ecological approach to rehabilitation and screening measures, as opposed to a horticultural approach to landscaping, will be adopted. For example, communities of</p>	<p>The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No further recommendations.</p>	



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	indigenous plants enhance biodiversity and blend well with existing vegetation. Plans for the removal of the track will include landscape restoration. All soils will be ripped and prepared to allow for the self-succession of natural vegetation.						
Fauna Removal of the road may impact the safety of local fauna.	The construction areas will be fenced off. Fences will be regularly inspected. Fences will be included in the designs for the railway.	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	
Flora The disturbance of the cleared areas may allow the establishment of alien invasive vegetation.	Khumani will establish and implement a regular weed-control programme to eradicate existing invader plants and to prevent new invasions during ongoing opencast mining operation and decommissioning. Local people will be involved in the weed-control programme. Update the eradication, spread prevention as well as monitoring plan of invader species. Implement the weed eradication plan and monitor the area. Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	
Noise The removal of the road will increase the ambient noise levels in the area. This is however only temporary.	Vehicles will be equipped with mufflers where practical to reduce the emission of noise. Where noise becomes a nuisance management measures will be investigated and implemented to address these. Construction activities will be limited to the hours of 7h00 to 18h00 weekdays. Induction and awareness training will address the need to keep noise to a minimum. A maintenance	The road between Bruce and Parson has not been constructed yet. The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	



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	programme will be established and implemented. Noise monitoring forms part of the monitoring schedule.						
1.2 Establishment of New Borrow Pits and Expansion of Existing Borrow Pits							
1.2.3 Decommissioning phase							
<ul style="list-style-type: none"> The borrow pits will be concurrently rehabilitated during the operational phase. 							
Activity: Rehabilitation of borrow pits							
<p>Topography</p> <p>Borrow pits will be backfilled as far as practically possible. Small depressions will however remain.</p>	<p>Borrow pit areas will be backfilled as far as practically possible. The topography of these areas must be contoured and shaped to be safe. In addition to this the surrounding area must be shaped and contoured to such an extent that water is diverted around these depressions.</p> <p>The walls of the borrow pits will be shaped so that there are no steep sides, and the affected area will be ripped, with the addition of topsoil if necessary, for natural vegetation to re-establish itself when the areas are rehabilitated.</p>	<p>Borrow pits are still present on site. At the Plant area, borrow pits have been shaped, but not backfilled.</p> <p>North of the railway siding, water is accumulating into the borrow pits. The source of this water is not understood fully, but it may be a likely result of subsurface drainage from the upgradient Storm Water Dams at Parson.</p> <p>Borrow Pits 3 and 5 north of the railway line formed part of the WULA (submitted in 2011). This application was submitted as the borrow pits would have stored water. This water use was not included into the 2013 WUL and is no longer required for such purpose.</p>	<p>Site observations.</p> <p>2011 WUL application forms.</p>	1	3	<p>The purpose of borrow pits should be determined. Where borrow pits will no longer be utilised rehabilitation plans should be implemented for these.</p> <p>The Mine should regularly test the quality of the water in the borrow pits to the north of the railway line and determine whether this is clean water or whether this may be seepage water from the PCDs.</p> <p>Depending on the need of the borrow pits north of the railway line, the requirement for WUL should be assessed.</p>	SHEQ Department
<p>Visual</p> <p>The borrow pits will have a visual impact. The borrow pits is visible from the adjacent road.</p>	<p>Borrow pit areas will be backfilled as far as practically possible. The topography of these areas must be contoured and shaped to be safe. In addition to this the surrounding area must be shaped and contoured to such an extent that water is diverted around these depressions.</p> <p>Where possible, topographical alteration will be designed to take the natural topography of the area into account. Design drawings will indicate the boundaries of the operation area.</p>	<p>Borrow pits are still present on site. At the Plant area, borrow pits have been shaped, but not backfilled.</p> <p>North of the railway siding, water is accumulating into the borrow pits, the source of this water is not understood fully, but it may be a likely result of subsurface drainage from the upgradient Storm Water Dams at Parson.</p> <p>Borrow Pits 3 and 5 north of the railway line, formed part of the WULA (submitted in 2011). This application was submitted as the borrow pits would have stored water. This water use was not included into the 2013 WUL and is no longer required for such purpose.</p> <p>Design drawings for the rehabilitation have not yet been drafted.</p>	<p>Site observations.</p> <p>2011 WUL application forms.</p>	1	3	<p>The purpose of borrow pits should be determined. Where borrow pits will no longer be utilised rehabilitation plans should be implemented for these.</p> <p>The Mine should regularly test the quality of the water in the borrow pits to the north of the railway line and determine whether this is clean water or whether this may be seepage water from the PCDs.</p> <p>Depending on the need of the borrow pits north of the railway line, the requirement for WUL should be assessed.</p>	SHEQ Department
1.3 Stormwater							
1.3.3 Decommissioning phase							
<ul style="list-style-type: none"> Removal of stormwater and retention dams; Construction vehicles/machinery on site; 							



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<ul style="list-style-type: none"> Contractors/workers on site; and Landscaping. 							
Activity: Decommissioning							
Topography The removal of the stormwater dams will result in topographical alterations.	The area from which the stormwater dams are removed will be ripped and shaped to follow the natural contours as far as practically possible. Design drawings must take into account the natural topography of the environment to ensure minimal impact.	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Soil, land capability and land use The removal of the stormwater structures will produce waste, which may lead to soil contamination.	A detailed waste management strategy will be established and implemented. The detailed waste management programme will be provided to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Soil, land capability and land use The utilisation of hydrocarbons and other chemicals during the removal of the stormwater dam's phase may lead to the contamination of soils.	There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. The incident management system will be communicated to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.						
Surface water The removal of the stormwater dams will produce waste, which may lead to surface water contamination.	A detailed waste management strategy will be established and implemented. The detailed waste management programme will be provided to all construction teams and contractors. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.	The Licence Holder is aware of this condition. The Mine is still in operational phase	Site observations.	T/N	T/N	No current recommendations.	-
Surface water The utilisation of hydrocarbons and other chemicals	There will be an incident management system, including procedures and training, for dealing with incidents as	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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<p>during the removal of the stormwater dam's phase may lead to the contamination of the surface water.</p>	<p>prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. The</p>						



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	<p>incident management system will be communicated to all construction teams and contractors.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
<p>Groundwater</p> <p>The utilisation of hydrocarbons and other chemicals during the removal of the stormwater dam's phase may lead to the contamination of soils.</p>	<p>There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.</p> <p>Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices.</p> <p>Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated</p>	<p>The Licence Holder is aware of this condition. The Mine is still in operational phase.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No current recommendations.</p>	<p>-</p>



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	<p>area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. The incident management system will be communicated to all construction teams and contractors.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
Activity: Landscaping and rehabilitation							
<p>Topography</p> <p>The removal of the stormwater dams will result in topographical alterations.</p>	<p>The area from which the stormwater dams are removed must be landscaped to conform to the natural topography of the area.</p> <p>Plans for the removal of the dams will include landscape restoration.</p>	<p>The Licence Holder is aware of this condition. The Mine is still in operational phase.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No current recommendations.</p>	<p>-</p>
<p>Surface water</p> <p>The landscaping of the area will restore the natural topography and therefore the natural flow regimes of the area.</p>	<p>Where possible, the natural flow regime of the area will be restored. Landscaping will take the natural flow regimes and topography into account. Plans for the removal of the dams will include landscape restoration.</p> <p>All soils will be ripped and prepared to allow for the self-succession of natural vegetation.</p>	<p>The Licence Holder is aware of this condition. The Mine is still in operational phase.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No current recommendations.</p>	<p>-</p>
<p>Visual</p> <p>The landscaping of the stormwater dams will remove the visual incongruity.</p>	<p>Where possible, landscaping will restore the natural aesthetics of the area.</p> <p>The self-succession of natural vegetation will be encouraged.</p> <p>The mine will investigate an appropriate seed mix for the rehabilitation purposes should</p>	<p>The Licence Holder is aware of this condition. The Mine is still in operational phase.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No current recommendations.</p>	<p>-</p>



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	self-succession not establish on rehabilitated sites. Plans for the removal of the dams will include landscape restoration. All soils will be ripped and prepared to allow for the self-succession of natural vegetation.						
Flora The rehabilitation of the site will involve promoting self-succession of natural vegetation.	Natural vegetation establishment (self-succession) will be encouraged. The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites. An ecological approach to rehabilitation and screening measures, as opposed to a horticultural approach to landscaping, will be adopted. For example, communities of indigenous plants enhance biodiversity and blend well with existing vegetation. Implement the weed eradication plan and monitor the area. Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
1.4 Construction of Additional Water Storage Tanks							
1.4.3 Decommissioning phase							
<ul style="list-style-type: none"> • Removal of storage tanks; • Construction vehicles/machinery on site; • Contractors/workers on site. 							
Activity: Removal of additional water storage tanks							
Soil, land capability and land use The removal process will generate domestic and construction waste and could lead to the contamination	A detailed waste management strategy will be established and implemented. The detailed waste management programme will be communicated to all people working on site as part of the induction and awareness training. The environmental requirements	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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and/or disturbance of soils.	on site will be communicated to all contractors and will be included in contractual conditions.						
Soil, land capability and land use Hydrocarbon spills during the decommissioning phase may lead to the contamination of soils.	<p>There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.</p> <p>Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices.</p> <p>Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to</p>	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	<p>make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people working on site.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p> <p>The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.</p>						
Surface water Hydrocarbon spills during the decommissioning phase may lead to the contamination of surrounding surface water.	<p>There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction</p>	<p>The Licence Holder is aware of this condition. The Mine is still in operational phase.</p>	Site observations.	T/N	T/N	No current recommendations.	-



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	practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Update the eradication, spread prevention as well as monitoring plan of invader species. Implement the weed eradication plan and monitor the area. Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.						
Groundwater Hydrocarbon spills during the decommissioning phase may lead to the contamination of groundwater through filtration.	There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. Environmental conditions will be included in construction contracts, thereby making contractors aware	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	<p>of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate. Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices. Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Update the eradication, spread prevention as well as monitoring plan of invader species. Implement the weed eradication plan and monitor the area. Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.</p>						
1.5 Increase of Diesel at Bruce							
1.4.3 Decommissioning phase							
<ul style="list-style-type: none"> • Cleaning out of storage tanks; • Removal of storage tanks; • Construction vehicles/machinery on site; • Contractors/workers on site. 							
Activity: Removal of additional diesel storage tanks							
Soil, land capability and land use The removal process will generate	A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP).	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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domestic and construction waste and could lead to the contamination and/or disturbance of soils.	The detailed waste management programme will be communicated to all people working on site as part of the induction and awareness training. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.						
Soil, land capability and land use Hydrocarbon spills during the decommissioning phase may lead to the contamination of soils.	There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities. If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices. Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	<p>immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people working on site.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p> <p>The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.</p>						
<p>Surface water</p> <p>Hydrocarbon spills from the storage tanks during the decommissioning phase may lead to the contamination of surrounding surface water.</p>	<p>There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p>	<p>The Licence Holder is aware of this condition. The Mine is still in operational phase.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No current recommendations.</p>	<p>-</p>



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	<p>Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices.</p> <p>Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Ensure the Emergency Preparedness and Response Programme is updated annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people working on site.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p> <p>Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. The handling, storage and disposal of hazardous chemical substances</p>						



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	will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.						
Groundwater Hydrocarbon spills from the storage tanks during the decommissioning phase may lead to the contamination of groundwater through filtration.	<p>There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices.</p> <p>Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.</p> <p>Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.</p> <p>Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP. Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Ensure the Emergency Preparedness and Response Programme is updated</p>	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	<p>annually.</p> <p>Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof.</p> <p>The incident management system will be communicated to all people working on site.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p> <p>Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.</p> <p>The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.</p>						
1.6 Additional Silos for Explosives							
1.6.3 Decommissioning phase							
<ul style="list-style-type: none"> • Cleaning of silo; • Removal of silo; • Construction vehicles/machinery on site; • Contractors/workers on site. 							
Activity: Removal of additional silo							
Soil, land capability and land use The removal process will generate domestic and construction waste and could lead to the contamination and/or disturbance of soils.	<p>A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP). The detailed waste management programme will be communicated to all people working on site as part of the induction and awareness training.</p> <p>The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>	The Licence Holder has an Environmental Authorisation for the decommissioning of the Silos and the establishment of new Silos on other areas within the mining area. This Environmental Authorisation was issued in 2018.	Environmental Authorisation ROD Ref No: NC 30/5/1/2/3/2/1/(070) EM (Dated 27 July 2018).	T/N	T/N	Once tenders are issued for construction purposes, a copy of the EMP and Environmental Authorisation must be included in the contractor's pack.	SHEQ Department and Procurement Department
Soil, land capability and land use Hydrocarbon spills during the decommissioning phase may lead to	There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness	The Licence Holder has an Environmental Authorisation for the decommissioning of the Silos and the establishment of new Silos on other areas within the mining area. This Environmental Authorisation was issued in 2018.	Environmental Authorisation ROD Ref No: NC 30/5/1/2/3/2/1/(070) EM (Dated 27 July 2018)	T/N	T/N	Once tenders are issued for construction purposes, a copy of the EMP and Environmental Authorisation must be included in the contractor's pack.	SHEQ Department and Procurement Department



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the contamination of soils.	<p>Programme.Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated.Environmental conditions will be included in construction contracts, thereby making contractors aware of the necessity to prevent accidental spillages by the implementation of good construction practices.Employees will be trained in the utilisation of the spill kits. If any other minor spillage occurs the spillage will be cleaned immediately and the contaminated area will be rehabilitated, as appropriate.Employees will be educated by means of training and the Environmental Awareness Plan to make them aware of the necessity to prevent spillages by the implementation of the good housekeeping practices.Refer to Table 7-1, Section 7 of the EMP for the Emergency Procedures and Responses. Ensure the Emergency Preparedness and Response Programme is updated annually.Brief employees on the Emergency Preparedness and</p>						



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	Response Programme and enforce the implementation thereof. The incident management system will be communicated to all people working on site. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions. The handling, storage and disposal of hazardous chemical substances will be in accordance with Tables 4-4 to 4-6, Section 4.10 of the EMP.						
1.7 Additional vehicles / construction machinery on site							
1.7.3 Decommissioning phase							
<ul style="list-style-type: none"> • Cleaning of silo; • Removal of silo; • Construction vehicles/machinery on site; • Contractors/workers on site. 							
Activity: Additional vehicles / construction machinery on site							
Soil, land capability and land use Hydrocarbon spills/leaks from construction machinery and vehicles may lead to the contamination of soils.	<p>Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Off-limit areas will be fenced off. Vehicular movements on site will be limited.</p> <p>There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme.</p> <p>Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist.</p>	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	<p>If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. A vehicle / machinery maintenance and monitoring programme will be developed and established. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all people operating on site as part of the induction and awareness training. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
<p>Surface water Hydrocarbon spills/leaks from construction machinery and vehicles may lead to the contamination of soils.</p>	<p>Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Off-limit areas will be fenced off. Vehicular movements on site will be limited. There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DMR, DWA, DACE and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p>	<p>The Licence Holder is aware of this condition. The Mine is still in operational phase.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No current recommendations.</p>	<p>-</p>



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	<p>If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. A vehicle / machinery maintenance and monitoring programme will be developed and established. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all people operating on site as part of the induction and awareness training. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
Groundwater Hydrocarbon spills/leaks from construction machinery and vehicles may lead to the contamination of soils.	<p>Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Off-limit areas will be fenced off. Vehicular movements on site will be limited. There will be an incident management system, including procedures and training, for dealing with incidents as prescribed within the Environmental Awareness Programme. Major spillage incidents will be reported to the DMR, DWA, DACE</p>	<p>The Licence Holder is aware of this condition. The Mine is still in operational phase.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No current recommendations.</p>	<p>-</p>



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	<p>and the Department of Agriculture. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.</p> <p>If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If necessary, the polluted soils will be classified as waste and will be discarded at an appropriate permitted waste site. After removal of the contaminated soils, the affected areas will be landscaped and rehabilitated. A vehicle / machinery maintenance and monitoring programme will be developed and established. Ensure the Emergency Preparedness and Response Programme is updated annually. Brief employees on the Emergency Preparedness and Response Programme and enforce the implementation thereof. The incident management system will be communicated to all people operating on site as part of the induction and awareness training. The environmental requirements on site will be communicated to all contractors and will be included in contractual conditions.</p>						
<p>Fauna</p> <p>Vehicles travelling too fast may harm local fauna.</p>	<p>Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Drivers will receive induction and awareness training informing them of the rules related to travelling in designated areas and the importance of conserving the local fauna and flora. Speed limits will be maintained.</p>	<p>The Licence Holder is aware of this condition. The Mine is still in operational phase.</p>	<p>Site observations.</p>	<p>T/N</p>	<p>T/N</p>	<p>No current recommendations.</p>	<p>-</p>



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	Speed limit signs will be visible and legible on site. Off-limit areas will be fenced off. Vehicular movements on site will be limited. Induction and awareness training will include details on the rules relating to site access, speed limits, and the importance of faunal preservation.						
Flora Vehicles travelling out of construction areas will unnecessarily damage local flora.	Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Drivers will receive induction and awareness training informing them of the rules related to travelling in designated areas and the importance of conserving the local fauna and flora. Speed limits will be maintained. Speed limit signs will be visible and legible on site. Off-limit areas will be fenced off. Vehicular movements on site will be limited. Update the eradication, spread prevention as well as monitoring plan of invader species. Implement the weed eradication plan and monitor the area. Update the on-going rehabilitation programme to ensure that disturbed areas can be rehabilitated on an on-going basis, which will include ongoing monitoring.	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Noise Improperly maintained vehicles may produce excessive noise.	Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. Regular noise monitoring will take place in order to ensure that emissions do not exceed Occupational Health and Safety Standards. A vehicle / machinery maintenance	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	and monitoring programme will be developed and established. Refer to Section 5.3 of the EMP for details regarding noise monitoring.						
Air quality Improperly maintained vehicles may release excessive gases thereby contributing to air pollution.	Vehicles will be regularly monitored and maintained. Maintenance programmes will be established and implemented. A vehicle / machinery maintenance and monitoring programme will be developed and established.	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Air quality Vehicular activity on unpaved surfaces will produce fugitive dust.	Speed limits will be maintained. Speed limit signs will be visible and legible on site. Wet suppression will be utilised in order to reduce fugitive dust emissions, Should wet suppression not be sufficient, soil binding agents (such as Dust-a-side) will be utilised. Induction and awareness training will include details on the rules relating to speed limits. Dust control measures are outlined in Table 4-2, Section 4.10 of the EMP. Refer to Section 5.2 for details on dust monitoring.	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Activity: Additional workers on site							
Soil, land capability and land use Workers may directly impact soils through improper waste disposal and not using sanitation facilities.	A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP).All employees will be educated on the procedures to follow and the environmental restrictions regarding all environmental parameters. This will form part of the environmental awareness plan (Section 6 of the EMP).Access on site will be restricted to construction and operational areas.Off-limit areas will be fenced off.Workers will be restricted to construction / operational areas.Penalties will be imposed on	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	all staff that unnecessarily damages any environmental parameters. Induction and awareness training will address waste management on site.						
Surface water Workers may directly impact surface water through improper waste disposal and not using sanitation facilities.	A detailed waste management strategy will be established and implemented (refer to Table 4-1, Section 4.10 of the EMP). Workers will be restricted to construction / operational areas. All employees will be educated on the procedures to follow and the environmental restrictions regarding all environmental parameters. This will form part of the environmental awareness plan (Section 6 of the EMP). Access on site will be restricted to construction and operational areas. Off-limit areas will be fenced off. Penalties will be imposed on all staff that unnecessarily damages any environmental parameters. Induction and awareness training will address sanitation. Adequate sanitation facilities will be provided by mine management.	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-
Fauna and flora Increased harvesting of local fauna and flora	Khumani will establish and implement a monitoring programme to regulate the harvesting of plant material and fuelwood from the natural vegetation surrounding the mine. The poaching and hunting of animals will be strictly forbidden. All employees will be educated on the procedures to follow and the environmental restrictions regarding all environmental parameters. This will form part of the environmental awareness plan (Section 6 of the EMP). Access on site will be restricted to construction and operational	The Licence Holder is aware of this condition. The Mine is still in operational phase.	Site observations.	T/N	T/N	No current recommendations.	-



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	areas. Off-limit areas will be fenced off. Workers will be restricted to construction / operational areas. Penalties will be imposed on all staff that unnecessarily damages any environmental parameters. All employees will be educated on the procedures to follow and the environmental restrictions regarding all environmental parameters. This will form part of the environmental awareness plan (Section 6 of the EMP).						
Compliance Rating				20	30	70%	



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Table 14: EMP Environmental Audit: 2012 EA for Silos and Diesel Storage (23 July 2012)

Number/Description	Requirement	Observation	Source Document/Observation			Recommendation	Responsible person
The Granting of the Environmental Authorisation for the expansion of diesel storage and a silo for explosives, the construction of a tar road, additional refuelling station, storm water dams and storage tanks (Permit 37/2012)							
Conditions -Scope of Authorisation							
1	Authorisation of the activity is subject to the conditions contained in this authorisation which conditions form part of environmental authorisation and are binding on the holder of the authorisation	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
2	The holder of this authorisation shall be responsible for ensuring compliance with the conditions by any person acting on his or her behalf including but not limited to , an agent sub-contractor, employee or person rendering a service to the holder of the authorisation.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
3	The activity(s) which is authorised may only be carried out at a property indicated above	Compliant, activities are undertaken on demarcated sites. The silos at Parson have been decommissioned. The ones at the King Plant are currently being considered for decommissioning. The silos will be relocated to Bruce and south of King respectively in line with the Environmental Authorisation issued by the DMR in 2018.	Environmental Authorisation ROD Ref No: NC 30/5/1/2/3/2/1/ (070) EM (Dated 27 July 2018)	3	3	Decommissioning and reconstruction should only take place with the relevant Environmental Authorisations in place.	SHEQ Department
4	Any changes to, or deviations from the project description set out in this authorisation must be approved in writing by the Department before such changes or deviations may be affected. In assessing whether to grant such approval or not the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation in terms of the regulations	The silos at Parson have been decommissioned. The ones at the King Plant are currently being considered for decommissioning. The silos will be relocated to Bruce and south of King respectively in line with the Environmental Authorisation issued by the DMR in 2018.	Environmental Authorisation ROD Ref No: NC 30/5/1/2/3/2/1/ (070) EM (Dated 27 July 2018)	3	3	Decommissioning and reconstruction should only take place with the relevant Environmental Authorisations in place.	SHEQ Department
5	This authorisation does not negate the holder of the authorisations responsibility to comply with any other statutory requirements that	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-



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	may be applicable to the undertaking of the activity.						
General Conditions							
6	A copy of this authorisation must be kept at the property where the activity will be undertaken. The authorisation must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.	Compliant. A copy is kept at the Environmental Superintendent.	Site observations.	3	3	No recommendations.	-
7	Where any of the applicants contact details change, including the name of the responsible person, the physical or postal address and or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.	The Licence Holder is aware of this condition. It is important to note that the Licence Holder is Assmang (Pty) Ltd and not Assmang Ltd.	Site observations.	1	3	The mine should notify the DMR of changes to the mine's name in writing.	SHEQ Department
8	The holder of the authorisation must notify the Department, in writing and within 24 (twenty-four) hours, if condition 16 of this authorisation cannot be or is not adhered to. In all other cases, the holder of the authorisation must notify the Department, in writing within 7 (seven) days if a condition if this authorisation is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance.	This condition is not practical to implement. There are various conditions which will not at all times be compliant, in terms of specific operational measures, such as waste management, hydrocarbon management. It will not be practical to notify the DMR of such issues.	Site observations.	TBA	TBA	It is recommended that this condition be removed from the ROD and rather be replaced with a condition stating: The Licence Holder must within 24 hours, notify the Competent Authority of the occurrence or detection of any incident on the Site, incidental to the operation of the site, which has the potential to cause, or has caused legal non-compliance, pollution of the environment, health risks, nuisance conditions or water pollution. This is regarded as a Regulation 34 Amendment, which could be incorporated into the overall Environmental Authorisations Process scheduled for early 2020.	SHEQ Department
9	Non-compliance with a condition of this authorisation may result in criminal prosecution or other	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-



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	actions provided for in the National Environmental Management Act, 1998 and the regulations.						
10	This authorisation is subject to the approval by the relevant local authorities i.e. in terms of any relevant legislation administered by those local authorities.	All environmental permits (MPRDA, NWA and NEMA) were received for this project. The Mine has also received a provisional AEL for the Diesel Storage Tanks by the NCDENC.	Site observations.	3	3	No recommendations.	-
11	The activity may not commence without the necessary permits/Licences approvals and or service agreements where it is relevant from or with the relevant regulatory authorities whether national , provincial or local (these include but are not limited to National Department of Water and Environmental Affairs, National Department of Agriculture, Forestry and Fisheries, Department of Cooperative Governance and Human Settlement , Department of Water Affairs, Department of Minerals and Resources, Department of Energy Department of Roads and Public Works, Department of Transport, Department of Arts & Culture, Department of Sports and recreation, South African Heritage Resources Agency , South African Civil Aviation Authority).	All environmental permits (MPRDA, NWA and NEMA) were received for this project. The Mine has also received a provisional AEL for the Diesel Storage Tanks by the NCDENC.	Site observations.	3	3	No recommendations.	-
12	The activity, including site preparation, may not commence before the thirty-day appeal period expires or until such time as the department has considered any appeals that have been lodged.	It is uncertain when the activities commenced. No information could be obtained to assess this finding.	-	0	3	Construction dates and programmes should be sourced and kept on file for the purposes of audits.	SHEQ Department
13	The applicable conditions of this authorisation must form part of all contractors' and subcontractors' conditions of contract. A performance-based requirement with regard to environmental impact management must be	All construction activities have been completed. This condition will not be assessed retrospectively. The road in question has not as yet been constructed.	Site observations.	T/N	T/N	No further recommendations.	-



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	included in all contracts related to any aspect of this authorisation.						
14	The applicant must carry out regular environmental audits to establish compliance with the conditions of the authorisation and contracts.	Areas in the Mine are divided into Workshops, Wash bays, Plant and Mining. Checklists are available for each of these areas. Environmental Officers are appointed for the Bruce, King and Parson Load-Out Facilities. Monitoring schedules are in place for each of these sites, planned a year ahead. In terms of the checklists, the mining checklists make specific reference to "any rehabilitation currently in progress and conducted correctly/according to the EMPPr". Annual performance assessments have been undertaken by external Environmental Assessment Practitioners.	Inspection checklists for Environmental (available at Durelle Carstens). Environmental Audit Reports, 2018.	3	3	No recommendation.	-
15	Records relating to the compliance/non-compliance with the conditions of the authorisation and contracts must be kept in a good order. Such records must be made available to the Department within 7 days of receipt of a written request by the Department for such records.	No reportable incidents have been encountered on site according to site interview. Any onsite incidents are being undertaken by means of the IsoMetrix system, all observations identified during the site inspections (checklists) are captured on IsoMetrix. The records are kept with the checklists at the Environmental Department.	IsoMetrix Log - dust suppression at chute and secondary crusher (31 August 2017) and secondary crusher bund trench cleaning (31 August 2017, Sewage treatment plant sludge ad water in sump (8 September 2017)	3	3	No recommendation.	-
16	Any complaints regarding the said development must be brought to the attention of the Department within 24 hours after receiving the complaint. A complaints register must be kept up to date for inspection by the Department.	All comments are placed on record and addressed. No complaints have been received in the past 12 months.	Site observations.	3	3	No recommendations.	-
17	Officials in the employ of the Department shall be given access to the property as described above (see detailed description of the activity) for the purposes of assessing and/or monitoring compliance with the conditions contained in this RoD. Where the activity is located on a third party's property the applicant shall be responsible to arrange access for departmental officials.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
18	This Department may add to, change and/or amend any of the conditions in this authorisation if, in the opinion of the Department,	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-



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	the additions, change of amendment is environmentally justified. In event that such impacts exceed its significance as predicted in the independent consultant's environmental scoping report and supporting documentation, the authorisation may be withdrawn after proper procedures were followed.						
19	In the event of any dispute concerning the significance of a particular impact, the opinion of this department in respect of its significance will prevail.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
20	This Department an any national department, provincial department, local authorities or committees appointed in terms of the conditions of this application or any other public authority or organisation shall not be held responsible for any damage of losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of approval as set out in this document or any other subsequent document emanating from these conditions of approval.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
21	The applicant shall be responsible for all costs necessary to comply with the above conditions unless otherwise specified.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
22	The applicant must apply the principle of best practicable environmental option for all technologies used/implemented during construction.	No construction activities are currently undertaken.	Site observations.	NLR	NLR	No further recommendations.	-
23	The integrity of the Gamagara river and associated tributaries must be	Compliant. A detailed storm water management programme was designed for the mining area. This programme has been	Site observations WUL:	3	3	No further recommendations.	-



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	protected, by the prevention of any pollutant, leachate and siltation from reaching the river.	implemented. All activities within the 1:100-year floodline of the river have been approved in terms of the WUL.	10/D411/BC11/2122 (16 March 2013)				
24	The applicant must establish a borehole and watercourse monitoring program as prescribed in the EMP, and the provision of water quality data to the DWA.	Water monitoring is undertaken in terms of the WUL as part of a monitoring programme.	Site observations WUL: 10/D411/BC11/2122 (16 March 2013)	3	3	No further recommendations.	-
Appeal of the authorisation:							
25	N/A	No appeals were received.	Site observations.	NLR	NLR	No further recommendations.	-
26	N/A	No appeals were received.	Site observations.	NLR	NLR	No further recommendations.	-
27	N/A	No appeals were received.	Site observations.	NLR	NLR	No further recommendations.	-
Monitoring							
26	The applicant must appoint a suitable experienced ECO for the construction phase of the development that will have the responsibility to ensure that the mitigation/rehabilitation measures and recommendations referred to in this authorisation are implemented.	No construction activities are currently undertaken. GCS was appointed as the ECO during the construction period of the mine. The visits were schedule for once a month, the mine having appointed internal ECOs for the remainder of the time.	Site observations.	3	3	No further recommendations.	-
27	The ECO shall be appointment before commencement of any land clearing or construction activities.	No construction activities are currently undertaken. GCS was appointed as the ECO during the construction period of the mine. The visits were schedule for once a month, the mine having appointed internal ECOs for the remainder of the time.	Site observations.	3	3	No further recommendations.	-
28	The ECO shall keep record of all activities on site, problems identified, transgressions noted, and a task schedule of task undertaken by the ECO.	Currently during the operational phase, areas in the Mine are divided into Workshops, Wash bays, Plant and Mining. Checklists are available for each of these areas. Environmental Officers are appointed for the Bruce, King and Parson Load-Out Facilities. Monitoring schedules are in place for each of these sites, planned a year ahead. In terms of the checklists, the mining checklists make specific reference to "any rehabilitation currently in progress and conducted correctly/according to the EMPr". Annual performance assessments have been undertaken by external Environmental Assessment Practitioners.	Inspection checklists for Environmental (available at Durelle Carstens). Environmental Audit Reports, 2018.	3	3	No recommendation.	-
29	The ECO shall remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.	Compliant, a full Environmental Team is available on site.	Site observations.	3	3	No further recommendations.	-
30	Records relating to monitoring and auditing must be kept on site and	Currently during the operational phase, areas in the Mine are divided into Workshops, Wash bays, Plant and Mining. Checklists	Inspection checklists for Environmental	3	3	No recommendations.	-



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	made available for inspection to any relevant and competent authority in respect of this development.	are available for each of these areas. Environmental Officers are appointed for the Bruce, King and Parson Load-Out Facilities. Monitoring schedules are in place for each of these sites, planned a year ahead. In terms of the checklists, the mining checklists make specific reference to "any rehabilitation currently in progress and conducted correctly/according to the EMPr".	(available at Durelle Carstens). Environmental Audit Reports, 2018.				
Recording and Reporting to the Department							
31	Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.	The Licence Holder is aware of this condition. It is important to note that the Licence Holder is Assmang (Pty) Ltd and not Assmang Ltd.	Site observations.	Dup	Dup	SHEQ Department	SHEQ Department
32	In all other cases, the holder of the authorisation must notify the Department, in writing, within 7 days if a condition of the authorisation is not adhered to. Any notification in terms of this condition must be accompanied by the reason for non-compliance.	This condition is not practical to implement. There are various conditions which will not at all times be compliant in terms of specific operational measures such as waste management, hydrocarbon management. It will not be practical to notify the DMR of such issues.	Site observations.	TBA	TBA	It is recommended that this condition be removed from the ROD/ Environmental Authorisation and rather be replaced with a condition stating: The Licence Holder must within 24 hours, notify the Competent Authority of the occurrence or detection of any incident on the Site, incidental to the operation of the site, which has the potential to cause, or has caused legal non-compliance, pollution of the environment, health risks nuisance conditions or water pollution. This is regarded as a Regulation 34 Amendment, which could be incorporated into the overall EIA Process scheduled for early 2020.	SHEQ Department
33	Records relating to the compliance/non-compliance with the conditions of the authorisation and contracts must be kept in good order. Such records must be made available to the Department within 7 days of receipt of a written request by the Department for such records.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No recommendations.	-



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34	Any complaints regarding the said development must be brought to the attention of the Department within 24 hours after receiving the complaint. A complaints register must be kept up to date for inspection by the Department.	All comments are placed on record and addressed.	Site observations.	T/N	T/N	No recommendations.	-
35	14 days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.	No proof of notification could be obtained from site.	Site observations.	0		A letter should be drafted to the department stating that this condition was overlooked and state when the activities commenced.	SHEQ Department
36	The authorised activity shall not commence within thirty (30) days of the date of signature of the authorisation.	No proof of notification could be obtained from site.	Site observations.	0		A letter should be drafted to the department stating that this condition was overlooked and state when the activities commenced.	SHEQ Department
37	Should you be notified by the minister of a suspension of the authorisation pending appeal procedures, you shall not commence with the activity unless authorised by the minister in writing.	No appeals were received.	Site observations.	NLR	NLR	No further recommendations.	-
38	Permits must first be obtained from the Department of Agriculture, Forestry and Fisheries for the cutting, damaging and removal of any protected flora.	Tree removal permits have been obtained for the activities.	Tree Removal Permit 0012/2017. Licence: NCU 7971117	3		No recommendations.	-
39	Any permits required for the removal of fauna must be obtained from the Department of Environment and Nature Conservation before removal.	Tree removal permits have been obtained for the activities.	Tree Removal Permit 0012/2017. Licence: NCU 7971117	3		No recommendations.	-
Operation of the activity:							
40	Fourteen days written notice must be given to the Department that the activity operational phase will commence.	No proof of notification could be obtained from site.	Site observations.	0	3	A letter should be drafted to the department stating that this condition was overlooked and state when the activities commenced.	SHEQ Department
41	During operational phase of the development storm water drainage must be monitored.	Water monitoring is undertaken in terms of the WUL.	Site observations. WUL:	3	3	No further recommendations.	-



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	Possible ground water contamination must also be monitored.		10/D411/BC11/2122 (16 March 2013)				
42	The construction area must be demarcated, no construction activities should be allowed outside proposed footprint.	No construction activities are currently undertaken.	Site observations.	N/A	N/A	No further recommendations.	-
Duration and period of validity							
	The activity(s) must commence within a period of three years from the date of issue. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.	It is uncertain when the activities commenced. In terms of Google Maps, the Silos at King was under construction during July 2012.	Google Earth	3	3	Construction dates and programmes should be sourced and kept on file for the purposes of audits.	SHEQ Department
Compliance Rating				58	60	97%	



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Table 15: Environmental Audit: Expansions 2016 (January 2016)

Number/Description	Requirement	Observation	Source Document/Observation			Recommendation	Responsible person
Construction Requirements in EMP							
Geology	No mitigation necessary	No condition to assess.	-	-	-	No recommendations	-
Topography	Demarcate footprint area clearly. Minimise site clearance to the footprint area only. Action: All areas are to be demarcated clearly. All construction must take place within designated areas.	The boundaries of WRD J are not clearly demarcated on site, and not available on the current site layouts viewed in the SHEQ Offices.	Site observations.	0	3	The boundaries of the infrastructure should be demarcated on site and should be included onto the site layouts on site, this could be undertaken by means of markers such as white pegs.	Survey & SHEQ Department
Soils, Land use and Land capability	Minimise the stripping footprint as far as possible. Topsoil should be stripped where infrastructure is placed, and site clearance take place. Actions: Ensure that soil management methods are communicated and implemented by contractors and staff.	Compliant. Lenfield, the contractors responsible for rehabilitation of the site is responsible for the removal of topsoil.	Site observations.	3	3	No recommendations.	-
	Avoid clearance and earthworks after heavy rain. Drive only on approved roads. Actions: Adhere to soil stripping, Soil Stockpiling and Soil Management plan. Implement Vehicle Operation Plan.	Compliant, no areas of concern were observed. Lenfield, the contractors responsible for rehabilitation of the site is responsible for the removal of topsoil.	Site observations.	3	3	No recommendations.	-
	Demarcate the footprint area clearly. Manage storm water flow with temporary erosion control measures where possible (cut-off trenches or berms). Schedule construction as soon as possible after site clearing. Actions: Adhere to Storm water Management Plan. Ensure that all design drawings include effective erosion control measures. Ensure the required erosion protection measures are monitored and corrected where necessary.	The activities are constructed within the existing mining boundary. The construction is in the beginning phase, and no concerns in terms of erosion were observed. The construction of the WRD J has resulted in an impact on the channel leading water from the King Workshop STP towards the Crusher PCD.	Site observations.	1	3	The stormwater channels in and around King towards the PCDs should be investigated in terms of its efficiency and be maintained and/or upgraded.	Engineering Department
	Store solid waste in approved waste disposal area. Remove waste regularly (approved contractor). Chemicals and fuels to be stored in bunded areas. Vehicles to be correctly maintained to prevent oil leakages and in the approved workshop areas on either Parson, Bruce or King area. Any hydrocarbon spills to be cleaned immediately. Significant spills should be reported to the regulatory authorities within 24 hours and a clean-up strategy should be formulated.	No areas of concern regarding waste management were observed around the WRD J.	Site observations.	3	3	No recommendations.	-



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	<p>Actions:</p> <p>Adhere to waste storage and handling plan.</p> <p>Adhere to spill management plan.</p> <p>Adhere to emergency procedure report and implement spill clean-up procedures.</p>						
Heritage	N/A	No condition to assess.	-	-	-	No recommendations.	-
Hydrology	<p>Rehabilitate open areas as soon as practically possible.</p> <p>Vegetate open areas as soon as practically possible. Only remove vegetation within demarcated areas. Manage storm water systems and runoff.</p> <p>Actions:</p> <p>Adhere to storm water management plan. Implement the surface water monitoring programme to prevent, manage and monitor potential erosion. Construct the required erosion protection measures. Adhere to rehabilitation plan.</p>	The activities are constructed within the existing mining boundary. The construction is in the beginning phase, and no concerns in terms of erosion were observed. The construction of the WRD J has resulted in an impact on the channel leading water from the King Workshop STP towards the Crusher PCD.	Site observations.	Dup	Dup	The stormwater channels in and around King towards the PCDs should be investigated in terms of its efficiency and be maintained and/or upgraded.	Engineering Department
	<p>Ensure clean and dirty water separation. Implement immediate spill clean-up procedures. Undertake emergency water monitoring. Notify water users of potential pollution immediately. Inform relevant authority immediately.</p> <p>Actions:</p> <p>Adhere to storm water management plan. Adhere to water quality monitoring plan. Adhere to spill management plan.</p>	No areas of concern regarding waste management or spill clean up were observed around WRD J.	Site observations.	3	3	No recommendations.	-
	<p>Fixed damaged storm water management structure. Implement immediate spill clean-up procedures. Notify water users of potential pollution immediately. Inform relevant authority in terms of the conditions of the licence.</p> <p>Actions:</p> <p>Adhere to storm water management plan. Adhere to water quality monitoring plan. Adhere to spill management plan.</p>	No such incident has occurred on site.	Site observations.	T/N	T/N	No recommendations	-
	<p>Ensure storm water management on site. Undertake water quality monitoring. Notify water users of potential pollution immediately. Inform relevant authority immediately. Update the groundwater module to include the new stockpiles in a time series. Undertake a waste classification on the low-grade material to establish the waste type and disposal requirements in terms of the relevant norms and standards.</p> <p>Actions:</p> <p>Adhere to storm water management plan. Adhere to water quality monitoring plan. Adhere to spill management plan. Waste characterisation and</p>	Groundwater monitoring is being undertaken on site and will continue as the project develops. No surface water monitoring is being undertaken on the farm King in the PCDs.	Water Quality Reports, up until June 2019.	0	3	In order to ensure that the water quality in the King area is understood it is recommended that the water containment areas are also monitored.	SHEQ Department



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	classification of all residue stockpiles (i.e. low-grade stockpiles and paste disposal material).						
Groundwater	N/A	No condition to assess.	-	-	-	No recommendations	-
Terrestrial Biodiversity (Fauna and Flora)	Minimise the area to be cleared. Identify important species in the footprint area. Conduct detailed, multi-seasonal walk-through prior to construction activities. Compile list of protected and red data species. Develop relocation programme if possible, or invest other into the current nursery on site. Apply for relevant permits with authorities prior to the removal of protected plant species. Develop an offset area action plan which should be signed off by the NCDENC. Actions: Adhere to Biodiversity Conservation Plan. Adhere to Alien and Invasive Vegetation management plan. Adhere to Flora and Fauna relocation programme. Build onto the existing nursery on site and the tree planting strategy.	<p>A tree removal permit is in place from the NCDENC for the removal of protected species from the WRD J footprint area.</p> <p>A tree removal permit is also available from the Department of Agriculture, Forestry and Fisheries (DAFF). This permit is valid until 30 November 2019.</p> <p>An Offset Area on the farm Watermeyer has also been established.</p>	Tree Removal Permit 0012/2017. Licence: NCU 7971117	3	3	No recommendations.	-
	Minimise the area to be cleared. Identify important species in the footprint area. Develop relocation programme. The importance to finalise and conclude the current Offset area process must be emphasised. Implement biodiversity offset principles (if necessary). Actions: Develop a timeframe and programme for the finalisation of the offset area and keep track of the process with feedback to commenting stakeholders. It is important to take cognisance of the increase in footprint disturbance on the mine when finalising the offset area offset requirements. Note, that the focus should be on the residual footprint, which should therefore assess what volume of residue stockpile will remain after reworking has completed. Adhere to Alien and Invasive Vegetation management plan. Adhere to Biodiversity Offset plan. Adhere to Flora and Fauna relocation programme.	<p>A tree removal permit is in place from the NCDENC for the removal of protected species from the WRD J footprint area.</p> <p>A tree removal permit is also available from DAFF. This permit is valid until 30 November 2019.</p> <p>An Offset Area on the farm Watermeyer has also been established.</p> <p>The BAP stated that It is the opinion of the specialist that no significant alteration of, or impact to, the vegetation communities associated with Vegetation Monitoring Points 1, 2, 3, 4, 5, 6, 7 and 8 has occurred as a result of mining related activities since the 2017 survey. Changes in vegetation community structure encountered at the time of the 2019 survey are presumably as a result of the prevailing dry climatic conditions. These unfavourable conditions have resulted in the dormancy of grass species and in an increase in the diversity of drought tolerant/pioneer forb and shrub species. However, no additional alien and invasive plant species have colonised the areas and no significant bush encroachment was encountered. The report further stated that the only vegetation monitoring point in which a significant change</p>	Tree Removal Permit 0012/2017. Licence: NCU 7971117 SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019	3	3	It is recommended that annual audits are undertaken on the BAP recommendations, which is also a legal requirement in the 2018 Environmental Authorisation issued by the DMR.	SHEQ Department



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		in vegetation structure was encountered was Vegetation Monitoring Point 2. The dry conditions and apparent overgrazing of the riverine vegetation has resulted in a decrease in grass cover since the 2017 survey and in the proliferation and dominance of annual weeds such as <i>Laggera decurrens</i> . However, should grazing within this area be managed and should alien and invasive species be removed, the vegetation should recover after adequate rainfall. When considering the area where the river diversion is present, Vegetation Monitoring Points 6, 7 and 9 are the most relevant, together with Vegetation Monitoring Point 2 on the Gamagara floodplains to the north of Parson, with no to limited mining activities (except for pipeline and conveyor crossings) taking place.					
	Identify a protocol that will allow for protection of animals during construction phases, this should include no hunting and/or poaching of animals. Implement awareness programmes. Actions: Adhere to Environmental Awareness Programme.	Poaching and hunting are addressed as part of the induction programme. Protection of animals as part of the construction phases is not clear. No signs are in place to inform employees of the present of antelope and other animals on site. In terms of the Training Manual for Occupational Hygiene and Environmental Control no reference is made to the protection of animals or the prohibition of poaching or hunting. This is important due to the presence of antelope (Kudu) on site.	Induction programme observed. Training Manual for Occupational Hygiene and Environmental Control.	0	3	It is recommended that the requirements in terms of zero hunting and poaching on site be incorporated as part of training materials. It is further recommended that signs for the presence of animals on site be placed strategically on roads.	SHEQ Department
	Minimise the area to be cleared. Identify important species in the footprint areas. Actions: Develop a timeframe and programme for the finalisation of the offset area and keep track of the process with feedback to commenting stakeholders.	A tree removal permit is in place from the NCDENC for the removal of protected species from the WRD J footprint area. A tree removal permit is also available from DAFF. This permit was valid until 30 November 2019. An Offset Area on the farm Watermeyer has also been established.	Tree Removal Permit Licence: NCU 7971117. SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019	3	3	No recommendations.	-
Air Quality	Dust monitoring by means of single dust buckets in the eight major wind directions should be continued. A workable system to monitor PM10s' should be implemented. Minimise dust liberation by watering/wetting surfaces. Monitoring of fence-line	Detailed dust monitoring protocol is in place, which is managed by Gondwana. PM10 monitoring is also undertaken.	Dust Fallout Report, December 2018.	3	3	No recommendations.	-



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	fallout dust. Treating of haul roads with dust retardant. Strictly enforced speed limits on haul roads. Limiting of transfer material. Actions: Implement dust monitoring programme in terms for the Dust Monitoring Gap Analysis undertaken by Prism EMS during 2014. Strictly enforced speed limits on haul roads. Dust suppression to be implemented as per the approved EMP and subsequent dust monitoring studies where these have improved the monitoring protocol.						
	Dust monitoring. Minimise dust liberation by watering/wetting surfaces. Treating of haul roads with dust retardant to limit the use of water as a dust suppressant. Actions: Adhere to Dust Fallout Management plan. Strictly enforced speed limits on haul roads.	During the site visit no significant areas of concern were observed. Roads are treated with a dust suppressant to limit the need for water suppression.	Site observations.	3	3	No recommendations.	-
	Monitoring vehicular emissions. Dust suppression and speed control. Actions: Implement a Vehicle Maintenance Plan. All vehicles must service regularly during the construction phase.	A vehicle maintenance schedule is in place on site. During the site visit the workshop personnel at the King Workshop explained that all vehicles must report to the workshop at least weekly for inspection.	Site observations.	3	3	No recommendations.	-
	Minimise the stripping footprint to only cover the areas to be cleared and stripped. Limit vegetation loss. Actions: Adhere to Soil stripping. Soil stockpiling and Soil management plan. Adhere to visual screening plan (tree planting strategy).	A tree removal permit is also available from DAFF. This permit is valid until 30 November 2019. Soil stripping is managed by Lenfield and topsoil stockpiles are present on site. The area where WRD J is constructed is located within the mining area.	Site observations.	3	3	No recommendations.	SHEQ Department
Noise	Implement acoustic screening measures such as the planting of endemic tree species as is currently being undertaken by the mine, similar to the initiative by the mine along the N14 on Parson farm. Undertake regular vehicle maintenance and keep records of such monitoring. Undertake noise monitoring. Actions: Adhere to Provincial Noise Regulations. Adhere to Noise Management Plan. Adhere to Vehicle Maintenance Plans.	Health and Safety monitoring is being undertaken on site continuously. Trees have been placed along the boundary on Parson along the N14. A vehicle maintenance schedule is in place on site. During the site visit the workshop personnel at the King Workshop explained that all vehicles must report to the workshop at least weekly for inspection.	Site observations.	3	3	The establishment of the trees should be regularly monitored.	SHEQ Department
Social	N/A	No condition to assess.	-	-	-	No recommendations	-
Wetland	No mitigation possible. The low-grade stockpile encroaches the pans. The pans will be permanently destroyed. Action:	The Offset Area has been finalised and purchased. The mine is in the process of registering the site.	Site observations.	3	3	The necessary WUL should be obtained for the purposes of the facilities' impacts on pans.	SHEQ Department



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	Develop a timeframe and programme for the finalisation of the Offset Area and keep track of the process with feedback to commenting stakeholders. It is important to take cognisance of the increase in footprint disturbance on the mine when finalising the Offset Area footprint requirements. Note, that the focus should be on the residual footprint, which should therefore assess what volume of residue stockpile will remain after reworking has completed.						
	Maintain storm water management structures. Implement immediate spill clean-up procedures. Undertake emergency water monitoring. Notify water users of potential pollution immediately. Inform relevant authorities immediately. Action: Adhere to Storm water Management Plan. Conduct Water Quality Monitoring. Adhere to Spill Response Plan.	Berms and paddocks are not in place around the Bruce Low-Grade ROM Stockpile. This facility has encroached over the pan in question.	Site observations.	0	3	The necessary storm water management systems should be implemented around WRDs. The required WULs should be obtained for the Section 21(c) and (i) water use.	SHEQ Department

Table 7.5: Impacts and Management Measures for Closure and Decommissioning Phase Activities.

MINE AREAS (BRUCE, KING AND MOKANENG): 1. PITS 2. OVERBURDEN 3. DUMPS 4. INFRASTRUCTURE AREAS 5. ROADS

DECOMMISSIONING & CLOSURE ACTIVITIES: 1. REMOVAL OF SURFACE INFRASTRUCTURE 2. ACTIVE SURFACE REHABILITATION OF DISTURBED AREAS

Topography Direct impact: reshaping of area	The area must be ripped. All slopes to be shaped to accommodate natural flow and vegetation establishment. All slopes to be safe for animals and humans Self succession will be promoted, where it does not succeed the client will investigate a revegetation programme Adhere to Rehabilitation Plan Adhere to Revegetation Plan Adhere to Stormwater Management Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Soils, Land use and Land capability Direct impact: soil compaction	Correct use of vehicles to prevent compaction Avoidance of work in very wet or waterlogged conditions Use tracked vehicles instead of wheeled vehicles where possible Avoid clearance and earthworks after heavy rain Drive only on demarcated roads Adhere to Soil Stripping, Soil Stockpiling and Soil Management Plan Implement Vehicle Operating Plan Adhere to Rehabilitation Plan Adhere to Revegetation Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Soils, Land use and Land capability Direct impact: soil contamination	Prevent spillage of fuel and oils Adhere to recommended vehicle maintenance schedule and environmental policies Provide spill kits and follow spill procedures on	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-



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	site for collection of contaminated soil Ensure correct functioning of storm water management structure until all structures are decommissioned.Ensure correct bunding of hydrocarbon and chemical storage areas Adhere to Waste Storage and Handling PlanSpill Management methods must be adhered toAdhere to Vehicle Maintenance Plan						
Soils, Land use and Land capability Direct impact: soil erosion	Minimise infrastructure footprint Manage stormwater and stormwater management measures Employ cut-off trenches or berms until area is established The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites Adhere to Rehabilitation Plan Adhere to Revegetation Plan Adhere to Stormwater Management Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Soils, Land use and Land capability Direct impact: change in land use	Plan land use after mining with the local authorities and in consultation with specialist Adhere to Rehabilitation Plan Adhere to Revegetation Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Hydrology Direct impact: Surface water contamination	Prevent spillage of fuel and oils Adhere to recommended vehicle maintenance schedule and environmental policies Provide spill kits and follow spill procedures on site for collection of contaminated soil Ensure correct functioning of storm water management structure Adhere to Rehabilitation Plan Adhere to Stormwater Management Plan Adhere to Revegetation Plan Adhere to Water Quality Monitoring Programme	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Hydrology Direct impact: Siltation	Re-establish vegetated areas in a timely manner through active planting and maintenance Minimise erosion through erosion control measures such as the use of energy dissipaters and other technologies. Adhere to Rehabilitation Plan Adhere to Stormwater Management Plan Adhere to Revegetation Plan Adhere to Water Quality Monitoring Programme	Active vegetation is not required for the Mine, as the self-establishment of vegetation has proven successful over time.	Site observations.	T/N	T/N	No current recommendations.	-
Groundwater Indirect impact: groundwater quality	Manage water ingress Manage hydrocarbons to avoid spillages Adhere to Rehabilitation Plan Adhere to Water Monitoring Programme Adhere to Spill Management Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-



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Terrestrial Biodiversity (Fauna and Flora) Direct impact: disruption to faunal and floral communities established on site	Limit activities to areas requiring rehabilitation only Ensure these areas are demarcated and fenced off Self succession will be promoted, where it does not succeed the client will investigate a re-vegetation programme as quickly as possible to minimise impact on faunal and floral communities Adhere to Rehabilitation Plan Adhere to Revegetation Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Terrestrial Biodiversity (Fauna and Flora) Direct impact: re-establishment of faunal and floral communities	Re-establish vegetated areas in a timely manner through active planting and maintenance Minimise erosion Manage alien and invasive plant/weed establishment Consider active introduction of faunal species Adhere to Rehabilitation Plan Adhere to Revegetation Plan	Active vegetation is not required for the Mine, as the self-establishment of vegetation has proven successful over time.	Site observations.	TBA	TBA	It is recommended that this condition be amended in terms of Regulation 34. This could be undertaken as part of the overall Environmental Authorisation process which is planned to commence during January 2019. The condition should be read that: The Mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites or as it is stipulated in the 2016 EMP as well: Self succession will be promoted, where it does not succeed the client will investigate a re-vegetation programme as quickly as possible to minimise impact on faunal and floral communities.	SHEQ Department
Air Quality Direct impact: fugitive dust emissions	Implement appropriate dust mitigation measures Re-covering of exposed areas Implement dust suppression where necessary Rehabilitate exposed areas as soon after infrastructure removal as possible Adhere to Rehabilitation Plan Adhere to Dust Management Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-



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Air Quality Direct impact: vehicle entrained dust	Implement appropriate dust mitigation measures Re-covering of exposed areas Implement dust suppression where necessary Rehabilitate exposed areas as soon after infrastructure removal as possible Manage vehicle movement on site and ensure speed limits are adhered to Adhere to Rehabilitation Plan Adhere to Dust Management Plan Adhere to Vehicle Operation Plan Adhere to South African Road Rules	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Air Quality Indirect impact: wind-blown dust-off rehabilitated areas	Ensure effective rehabilitation of exposed areas Monitor final rehabilitation for three years after closure (or according to legislative requirements at the time) Adhere to Rehabilitation Plan Adhere to Dust Management Plan Adhere to Revegetation Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Visual Direct impact: landscaping and berm removal	All slopes to be shaped to accommodate natural flow and vegetation establishment. All slopes to be safe for animals and humans Self succession will be promoted, where it fails the client will investigate a revegetation programme Adhere to Rehabilitation Plan Adhere to Revegetation Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Visual Direct impact: landscaping of Discard dump	All slopes to be shaped to accommodate natural flow and vegetation establishment. All slopes to be safe for animals and humans Self succession will be promoted, where it does not succeed the client will investigate a revegetation programmed Adhere to Rehabilitation Plan Adhere to Revegetation Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Visual Direct impact: removal of surface infrastructure	The area is to be resurfaced. All depressions and slopes will be modelled to ensure a natural surface flow regime. Materials which can be resold will be removed and resold All other waste will be discarded appropriately Re-establishment of Indigenous vegetation will be encouraged Adhere to Rehabilitation Plan Adhere to Revegetation Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Noise Direct impact: rehabilitation equipment and demolition activities	Activities will be limited to the hours of 07h00to 18h00 on weekdays. Vehicles will be equipped with mufflers to ensure noise reduction Employees will be briefed on the need to keep noise to a minimum	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-



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	Adhere to Rehabilitation Plan Adhere to Revegetation Plan						
Noise Direct impact: reduction in noise with cessation of mining activities	Remove infrastructure in a timely manner to minimise noise Remove all vehicles/machinery from site that are not required for rehabilitation activities Adhere to Closure Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Social Direct impact: out-migration of job seekers	Communicate decommissioning and closure prior to the decommissioning and closure phase being initiated Adhere to Social and Labour Plan Adhere to Retrenchment Policy	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Social Direct impact: loss of jobs	Communicate job losses/retrenchment prior to the decommissioning and closure phase being initiated Adhere to Social and Labour Plan Adhere to Retrenchment Policy	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Social Direct impact: reduced economic activity	Notify the LM of mine closure prior to decommissioning and closure phase Adhere to Social and Labour Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Social Indirect impact: increased crime	Enforce access control to limit loitering of people Engage with adjacent landowners to form a Community Forum Employ security guards on site Consult with the SAPS and/or community watch organisations Adhere to Social and Labour Plan Adhere to Access Control Procedures	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-

Table 7.6: Impacts and Management Measures for Post Closure Impacts.

MINE AREAS: 1. LOWGRADE STOCKPILE 2. OVERBURDEN 3. HAUL ROADS 4. INFRASTRUCTURE AREA 5. OC AREAS

POST-CLOSURE ACTIVITIES: MONITORING AND MAINTENANCE

Soils, Land use and land capability Indirect impact: soil erosion	Erosion due to water and wind may occur Poor vegetation establishment on site may increase erosion potential Ensure vegetation cover is adequately established Ensure the area is free draining Adhere to Rehabilitation Plan Adhere to Revegetation Plan Adhere to Soil Stripping, Soil Stockpiling and Soil Management Plan Adhere to Stormwater Management Plan	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Groundwater Indirect impact: groundwater quality deterioration	Maintain water quality monitoring up until closure certificate is obtained Implement water management measures if/when required Adhere to Water Quality Monitoring Programme	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-



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Terrestrial Biodiversity (Fauna and Flora) Direct impact: faunal and floral reestablishment	Ensure vegetation establishment is self-sustaining to support faunal re-establishment Adhere to Revegetation Programme	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Air Quality Direct impact: improvement in air quality	All mining related activities with the potential to generate dust will have ceased Ensure erosion is maintained Ensure vegetation reestablishment is self-sustaining Adhere to Revegetation Programme	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Social Direct impact: loss of jobs	Communicate job losses/retrenchment prior to the decommissioning and closure phase being initiated Adhere to Social and Labour Plan Adhere to Retrenchment Policy	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No current recommendations.	-
Compliance Rating				40	54	74%	



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Table 16: Environmental Audit: Expansions 2016 (June 2016)

Number/Description	Requirement	Observation	Source Document/Observation			Recommendation	Responsible person
2016 EIA: Ref - NC/EIA/11/JTG/GAM/KAT2/2014, 26 June 2016							
	Activity No. 11 (xi) of GN. R.544 of 18 June 2010 The construction of: (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of the watercourse, excluding where such construction will occur behind the development setback line.	No such activities have commenced to date.	Site observations.	T/N	T/N	No recommendations.	-
	Activity No. 22 of GN. R.544 of 18 June 2010 The construction of a road, outside urban areas, (i) with a reserve wider than 13.5 meters or, (ii) where no reserve exists where the road is wider than 8 meters, or (iii) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in the Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010.	No such activities have commenced to date.	Site observations.	T/N	T/N	No recommendations.	-
	Activity No. 28 of GN. R.544 of 18 June 2010 The expansion of or changes to existing facilities for any process or activity where such expansion or changes to will result in the need for a permit or licence in terms of national or provincial legislation governing the release of emissions or pollution, excluding where the facility, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	No such activities have commenced to date.	Site observations.	T/N	T/N	No recommendations.	-
	Activity No. 5 of GN. R545 of 18 June 2018 The construction of facilities or infrastructure for any process or activity which requires a permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	The construction of the WRD J on the farm King has commenced.	Site observations.	3	3	No recommendations.	-
	Activity No. 15 of GN. R.545 of 18 June 2018 Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to	No such activities have commenced to date.	Site observations.	T/N	T/N	No recommendations.	-



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	be transformed is 20 hectares or more; except where such physical alteration takes place for: (i) linear development activities; or (ii) agriculture or afforestation where activity 16 in this Schedule will apply.						
	Activity No. 14 of GN. R.546 of 18 June 2018 The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) Purposes of agriculture or afforestation inside areas identified in spatial instruments adopted by the competent authority for agriculture or afforestation purposes; Phased activities for all activities listed in these schedule, which commenced on or after the effective date of this schedule, where any one phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed the specified threshold. From Parson (Portions 2, 6 and the Remainder of Parson No. 564), King (Portions 1, 2, 3, and the Remainder of King No. 561), Bruce (Portions 3, 4, 5, and the Remainder of Bruce No. 544), Mokaning (Portions 1, 2, 3, 4, 5, and the Remainder of Mokaning No. 560) (Latitude (S) 27°51'48.844" Longitude (E) 22°57'2.451") (Latitude (S) 27°52'16.977" Longitude (E) 22°58'4.276") (Latitude (S) 27°51'30.393" Longitude (E) 23°0.'12.603") hereafter referred to as "the property". The granting of this Environmental Authorisation is subject to the conditions set out below.	The Khumani Mine is not located in a Critical Biodiversity Area (CBA) or other geographical zone which necessitate Listing 3 applications.	Site observations.	N/A	N/A	No recommendations.	-
Conditions:	Scope of authorisation:						
General conditions:	11. The activity may not commence without the necessary permits/licences/approvals and/or services agreements, where it is relevant, from or with the relevant regulatory authorities whether national, provincial or local (these include but are not limited to the National Department of Environmental Affairs, National Department of Agriculture, Forestry and	The construction of the WRD J on the farm King has commenced. This activity is not yet approved in terms of the WUL. A WULA was submitted, but it was requested by the DWS that this application be withdrawn upon completion of the detailed designs. At the time of the application, mine	Site observations.	0	3	The necessary WUL should be obtained for the purposes of this facility.	SHEQ Department.



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	Fisheries, Department of Housing & Local Government, Department of Water and Sanitation, Department of Mineral Resources, Department of Transport, Department of Roads & Public Works, Department Arts, Sports & Agriculture, South African Heritage Resources Agency, South African Civil Aviation Authority).	waste was not considered part of the NEMWA waste uses.					
	12. The activity, including site preparation, may not commence before the thirty (30) day appeal period expires or until such time as the Department has considered any appeals that have been lodged. A. One week's written notice must be given to the Administration clerk (Impact Management Unit) before commencement with the activity. B. Such notice shall make clear reference to the site location details and the reference number given above. C. The said notice must also include proof of compliance with the following conditions described herein: i. Conditions: 11 and 23.	No information on notifications could be obtained from site.	-	0	3	Proof of notification should be kept on site.	SHEQ Department
	13. The applicable conditions of this authorization must form part of all contractors and sub-contractors' conditions of contract. A performance-based requirement regarding environmental impact management must be included in all contracts related to any aspect of this authorization.	Pertinent information is shared through dedicated (SHEQ) Talk Topics which are included in the monthly Infocom meetings. Additional information share is facilitated via the induction programme, notice boards and news flashes on television screens. Due to the various spills of water on site the manner in creating awareness is questioned. Talk topics are undertaken monthly on site; some of the topics include protecting the environment, waste management and hydrocarbon spills. The following ongoing meetings are undertaken on site: * 3/1A meetings, with each of the Environmental Officers responsible for the Bruce, King or Parson sites; * One-on-one meetings with foremen held monthly at Bruce, King and Load-Out, with Parson to be assessed quarterly. Meetings are held in workshop areas, other inspections are conducted on a monthly basis and any new issues arising from these are addressed as Non-Conformance Reports (NCRs); * Environmental Forum Meetings held every 6 months; and	Contractor Management Procedure (Document Number:SP_155129).	2	3	It is recommended that more attention be given in the discussion points to the conditions of the environmental and water related permits, the importance thereof, the legal obligations and risks associated with not adhering to these. Another area worth including, would be when environmental, water and/or waste applications are triggered and how these could be avoided. It is recommended that the Contractors Management Procedure be updated to make provision for a list of all Environmental Authorisations, key environmental requirements (topsoil	SHEQ Department



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		<p>* Monthly meetings held with contractors – the Environmental Department is not yet involved but should form part of this to create environmental awareness.</p> <p>Based on the findings observed on site, specifically relating to water management, it is clear that the Mine is aware of the requirements of water conservation and management, and that ongoing actions are raised and activities implemented, such as the current upgrades in terms of the water containment facilities and channels on site.</p> <p>A Contractor Management Procedure is also available on site (Document Number: SP_155129) which specifically addresses the requirements in terms of SHEQ management and the requirements of SHEQ files. It is however unclear how contractors are trained in terms of the specific requirements of the EMPs and Environmental Authorisations.</p>				management, vegetation clearance, water management philosophy and waste management). It is further recommended that the liabilities for non-compliance in terms of the NWA and NEMA be stipulated in this document to ensure ongoing awareness of the risks associated with non-compliance.	
Appeal authorisation:	23. The holder of the authorisation must notify every registered interested and affected part, in writing and within seven (7) calendar days, of receiving notice of the Department's decision to authorise the activity.	Stakeholders were notified of the Environmental Authorisation on 8 July 2017.	GCS Letter, 8 July 2017.	3	3	No recommendations.	-
	24. The notification referred in 23 must -* specify the date on which the authorisation was issued;* inform the interested and affected party of the appeal procedure provided for in Chapter 7 of the regulations; and*advise the interested and affected party that a copy of the authorisation and reasons for the decision will be furnished on request.	Compliant.	GCS Letter, 8 July 2017.	3	3	No recommendations.	-
	25. If the applicant should appeal against this Environmental Authorisation, he/she must inform all interested and affected persons that such appeal is being lodged with the MEC and if requested, the applicant/appellant must provide those persons with reasonable access to a full copy of the appeal within a reasonable time before expiry of the thirty day appeal period.	No appeal was lodged.	Site observations.	3	3	No recommendations.	-
Monitoring and Recording:	29. The applicant must appoint a suitable experienced Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation / rehabilitation measures and recommendations referred to in this authorisation are implemented.	<p>The Mine has appointed designated Environmental Officers for the Bruce, King and Parson areas. The condition does not require an independent Environmental Control Officer (ECO).</p> <p>Areas in the Mine are divided into Workshops, Wash bays, Plant and Mining. Checklists are</p>	Inspection checklists for Environmental Department (available at Durelle Carstens).	3		No recommendations.	-



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		available for each of these areas. Environmental Officers are appointed for the Bruce, King and Parson Load-Out Facilities. Monitoring schedules are in place for each of these sites, planned a year ahead. In terms of the checklists, the mining checklists make specific reference to "any rehabilitation currently in progress and conducted correctly/according to the EMPr".					
	30. The ECO shall be appointed before commencement of any land clearing or construction activities.	Compliant.	Site observations.	3	3	No recommendations.	-
	31. The ECO shall keep record of all activities on site, problems identified, transgressions noted, and a task schedule of tasks undertaken by the ECO.	Records of transgression of the KM02 WRD are kept on site in terms of the audit findings and presentations thereof take place at the management meetings.	Site observations.	3	3	No recommendations.	-
Commissioning of the activity:	34. Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.	No information on notifications could be obtained from site.	Site observations.	0	3	Proof of notification should be kept on site.	SHEQ Department
	35. The authorised activity shall not commence within thirty (30) days of the date of signature of the authorisation.	Compliant, the construction of WRD J commenced during 2017.	Site observations.	3	3	No recommendations.	-
	36. Should you be notified by the minister of a suspension of the authorisation pending appeal procedures, you shall not commence with the activity unless authorised by the minister in writing.	No such notification was received.	-	N/A	N/A	No recommendations.	-
Duration and Period of Validity:	The activity(s) must commence within a period of three (3) years from date of issue. If commencement does not occur within that period and the intention is to extend the validity period of the authorisation, an application for the amendment to extend the validity period must be launched at least six months before the validity period lapses. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.	Activities had to commence before 5 July 2019; this has been initiated with the construction of WRD J.	Site observations.	3	3	No recommendations.	-
Compliance Rating				29	36	81%	



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Table 17: Environmental Audit: Silo Relocation and additional activities, (19 July 2018)

Number/ Description	Requirement	Observation	Source Document/Observation			Recommendation	Responsible person
Basic Assessment Report EMP, 19 July 2017							
4. Impacts, assessment and mitigation measures							
4,1	<p><u>Activity Need and Desirability</u> The objective is to beneficiate the low-grade ROM from the King Mine, similar to the plant process applied for at the Parson Mine. The project will not allow for (the extension to the LOM- which means it will lead to improvement of beneficiation on site, by allowing the beneficiation of a lower grade iron ore, in terms of Local Economic Development. The lawful and sustainable operation of the mine allows the mine to contribute to the Local Economic Development programmes.</p>	<p>The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.</p>	<p>Site observations.</p>	T/N	T/N	<p>The activities associated with this Environmental Authorisation must commence by 26 July 2028.</p>	<p>SHEQ Department</p>
4,2	<p><u>Services/ Bulk Infrastructure</u> Phase 3 will require an additional stockpile from where the -32mm size fraction will be beneficiated. As an alternative, Khumani may consider a truck tip instead of the additional stockpile to beneficiate the -32mm size fraction, resulting in less clearance. This will however be determined and finalised as part of the project design and will not have a further impact on the environmental consideration as presented in the report. The explosive magazine and silos located on farm Parson are located a distance away from the existing mining operations at Bruce Mine. The alternative to moving the silos will be to retain the site where it currently is. The relocation of the silos at this site is an economic decision which involves the relocation of the silos and magazine will reduce transportation costs is situated closer to the Bruce Mine. The silos at King Mine will be relocated within the plant and workshop areas. To improve efficiency, the mine intends constructing a magazine on King Mine.</p>	<p>The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.</p>	<p>Site observations.</p>	T/N	T/N	<p>The activities associated with this Environmental Authorisation must commence by 26 July 2028.</p>	<p>SHEQ Department</p>
4,3	<p><u>Air quality</u> Air quality monitoring station will be installed to determine fallout and respirable dust (PM10) concentration that will rise from the mine. Dust suppression should be undertaken regularly to prevent dust emissions.</p>	<p>The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.</p>	<p>Site observations.</p>	T/N	T/N	<p>The activities associated with this Environmental Authorisation must commence by 26 July 2028.</p>	<p>SHEQ Department</p>



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	Haulage roads will be treated with dust suppression techniques such as wet to reduce dust creation. Tarpaulins will be placed over all vehicles transporting product						
4,4	<u>Noise impact</u> Machinery and vehicles will be well maintained to prevent excessive noise and to comply with national and provincial regulations. All vehicles will have muffles to minimise noise emissions	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	The activities associated with this Environmental Authorisation must commence by 26 July 2028.	SHEQ Department
4,5	<u>Ground water</u> Clean and dirty water separation systems should be incorporated in terms of 2016 SWWP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	The activities associated with this Environmental Authorisation must commence by 26 July 2028.	SHEQ Department
4,6	<u>Soil contamination</u> All fuels and soils must be stored in appropriate containers. Chemicals and hazardous material must be stored in suitable containers, fit for purpose and in line with SDS requirements. Spill kit must be provided to be used in the event of a spill. Contaminated soil must be removed immediately and stored accordingly. Contaminated soil will be disposed of at the suitably licensed facility.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	The activities associated with this Environmental Authorisation must commence by 26 July 2028.	SHEQ Department
EMPR Table 15: Planning and Construction Phase Impact Assessment and Management Measures (Significance before Mitigation – SbM; Significance after Mitigation – SaM)							
Legal Requirements (Environmental Permits)							
South Africa Enviro-Legal Requirements							
Unlawful water and waste (mine residue) activities, which could lead to NWA Directives and Section 24G Rectification fines.							
	A legal assessment of all activities must be undertaken on site must be undertaken annually to ensure that all Environmental Authorisations are in place, implemented and activities licensed.	The Mine has appointed an external legal specialist to assist in ensuring legal compliance on site.	Site observations.	3	3	No further recommendations.	-
	The mine must familiarise themselves with the NEMWA Regulations for the management of Mine Residue Deposits. Those included in previous approved EMPs are considered lawful under the NEMWA, however when reworking, rehabilitation, stockpiling is taking place, and not included into the previous EMP, these activities are unlawful and may require a Waste Licence.	The Licence Holder is aware of the NEMWA requirements in terms of Mine Residue Deposits.	Site observations.	3	3	No further recommendations.	-
	All legally appointed personnel responsible or involved in approved activities on site must receive training on the requirements of the Environmental Authorisations.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	Training on the Environmental Authorisation and EMP must be undertaken by the Mine and minutes of such training must be kept on file.	SHEQ Department



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	Quarterly internal audits must be undertaken on the lawful implementation of the WUL.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	The activities associated with this Environmental Authorisation must commence by 26 July 2028.	SHEQ Department
	The Environmental Authorisation must be available on site at all times.	The Environmental Authorisation and EMP is available from the Environmental Superintendent.	Site observations.	3	3	No further recommendations.	-
	The legal register must be updated to indicate all approved activities on site (NEMA, NEMWA, ECA and MPRDA).	The Mine has appointed an external legal specialist to assist in ensuring legal compliance on site.	Site observations.	3	3	No further recommendations.	-
<p>Activity 1 - Land and Footprint Clearance Construction & widening of Roads: Development of roads to the King Silos. Should the King/Mokaning access road be used, a link of approximately 1.5km to this road will be required. Upgrades of roads to the Bruch Silos, may require an extension of approximately 450m to existing roads. Construction of Silos and Magazines at Bruce: Two magazine areas, an emulsion silo and an ammonium nitrate silo). This area will include all ancillary required infrastructure. Activity 1 - Land and Footprint Clearance Construction of Silos and Magazines at King: An emulsion silo and ammonium nitrate silo). This area will include all ancillary required infrastructure. combined a total storage of 195m³ (emulsion: 113m³) ammonium nitrate: 82m³) Laying of the pipelines within undisturbed areas: A pipeline route of approximately 800m will be required between point A1 and the two water supply areas P1 and P2. Activity 2 - Topsoil Stripping and Stockpiling Construction & widening of Roads: Development of roads to the King Silos. Should the King/ Mokaning access road be used, a link of approximately 1.5km to this road will be required. Upgrades of roads to the Bruch Silos, may require an extension of approximately 450m to existing roads. Construction of Silos and Magazines at Bruce: Two magazine areas, an emulsion silo and an ammonium nitrate silo). This area will include all ancillary required infrastructure. Construction of Silos and Magazines at King: An emulsion silo and an ammonium nitrate silo). This area will include all ancillary required infrastructure. For the Bruce and King expansions combined a total storage of 195m³ (emulsion: 113m³) ammonium nitrate: 82m³)</p>							
Topography Direct impact: Alteration of topography. Removal of vegetation and the associated shaping of the area to prepare footprint for construction will allow for increased surface water runoff, which may lead to change in topographical characteristics of the area.	Construction areas must be clearly demarcated to control movement of personnel and vehicles, providing clear boundaries for construction sites in order to limit the spread of impacts. Markers and pegs will be erected and maintained along the boundaries of the working areas, access roads, haul roads and paths before commencing any work. If proved insufficient for control, these shall be replaced by fencing.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Draw up a procedure clearly reflecting the method and phases of clearance of vegetation only in areas where construction will take place.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Removal of vegetation must be undertaken in a phased approach to limit surface exposure.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-



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	Erosion control measures must be implemented early in the construction phase.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Clean and dirty water separation must be implemented early in the construction phase, especially down-gradient of construction areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Where possible existing roads must be utilised.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Linear infrastructure must follow for as far as practically possible the natural contours of the area.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
Soil, Land Use and Land Capability Direct impact: The removal and stockpiling of topsoil may lead to a loss of soil resource and land capability through erosion of the stockpiles and chemical and physical degradation.	Adhere to Soil Stripping, Soil Stockpiling and Soil Management Plan as part of the original EMP (Soil Utilisation Guideline). Prior to construction of the road and the plant the soil will be stripped and placed in close proximity to the facilities. It is recommended that the soil and overburden be stockpiled as 1-1.5m berms around the roads and plant area. Remove 30cm of soil or until hard rock is reached. Any new topsoil stockpiles should not exceed 1.5m. Where exceedance is present on existing facilities, erosion control measures should be implemented, and vegetation establishment should be encouraged to assist in maintaining the structure of the soils for rehabilitation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
Soil, Land Use and Land Capability	The contractor will ensure that all activities, material and equipment storage and personnel movement take place within the designated area.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	All contractors must receive induction.	The Licence Holder is aware of this condition, no activities in terms of Silo	Site observations.	T/N	T/N	No further recommendations.	-



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		Demolition, Construction, Road Construction or Plant Development have commenced to date.					
	Site clearance and activities should be restricted to the approved footprint. Contractor's areas should be established on already disturbed footprints.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
Soil, Land Use and Land Capability Direct impact: Clearing vegetation will result in the exposure of soil, which may in turn lead to soil erosion.	Adhere to Storm water Management Plan.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Ensure that all design drawings include effective erosion control measures.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Ensure the required erosion protection measures are monitored and corrected where necessary.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Natural vegetation establishment (self-succession) will be encouraged.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Areas of construction must be clearly demarcated.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	No construction or project related activities may be undertaken outside of the demarcated areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Clean and dirty water systems must be established prior to construction.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	-



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		Construction or Plant Development have commenced to date.					
	Where vegetation cannot be established during the life of construction and operations, appropriate measure will be taken to control erosion. These will include grading of surfaces to prevent rapid run-off of storm water and / or the use of energy dissipaters.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	The mine will ensure that erosion controls are included in the designs of all linear infrastructure (access roads, conveyors or open channels) and points of water discharge.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
Terrestrial Ecology (Fauna & Flora) Direct impact: Unplanned loss of floral and faunal species of conservation importance	Prior to the removal of plant species, an ecologist should investigate the site (if not already done) to record all species of importance and which should be removed under tree removal permits. All such species should be demarcated by signage or tape.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	It is important to appoint the ecologist prior to site clearance activities being undertaken and to apply for the necessary tree removal or plant removal permits.	SHEQ Department
	Obtain tree removal permit prior to the removal of any protected species.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	It is important to appoint the ecologist prior to site clearance activities being undertaken and to apply for the necessary tree removal or plant removal permits.	SHEQ Department
	The pipeline proposed between P2/P1 and A1 should be rerouted if practically possible to avoid the floodplain vegetation and rather be rerouted to run through the Vachellia mellifera thicket to the south of the current route as shown in Figure 20 where possible.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	The pending offset area should be finalised to contribute to the overall conservation of sensitive and red data species.	The Licence Holder has purchased the Offset Area and is in process of registering the site.	Site observations.	3	3	No further recommendations.	-
	All employees, or contractors on site should receive a detailed induction on the expectations for the protection of fauna and flora on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	Once Tenders are issued for construction purposes, a copy of the EMP and EA must be included in the contractor's pack.	SHEQ Department and Procurement Department
	Weed eradication should be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
	Terrestrial Ecology (Fauna & Flora) Direct impact: Displacement of faunal species and human/animal conflict	A record of any animal fatalities should be kept on site. The reason for the fatality and action to	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.



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	avoid such in the future (if possible) should be stated.	Construction or Plant Development have commenced to date.					
	All employees, or contractors on site should receive a detailed induction on the expectations for the protection of fauna and flora on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	Once tenders are issued for construction purposes, a copy of the EMP and Environmental Authorisation must be included in the contractor's pack.	SHEQ & Procurement Department
	Clearance of vegetation must be undertaken in such a manner as to provide sufficient time for animals to relocate.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Terrestrial Ecology (Fauna & Flora) Direct impact: Loss of ecological connectivity and ecosystem functioning. This will be specifically important around the King Silo and to the east of the Bruce Silo, as these areas will be located in the less disturbed areas within the mining area.	No construction or project related activities may be undertaken outside of the demarcated areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The construction area can be isolated by means of a chain link fence in order to prevent animals on local migrations entering the area and being killed.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	In the establishment of fences, erect fences in such a manner as to limit the potential of animals to enter the plant and silo areas. This could involve the placement of rocks and materials at on the surface of the fences.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Terrestrial Ecology (Fauna & Flora) The disturbance of the cleared areas may allow the establishment of alien invasive vegetation. Increased prevalence of exotic invasive species: The fact that the area will be cleared for construction creates niches that can be colonised by exotic and/or invasive species. This is compounded by the fact that trucks and other heavy machinery often act as vectors for seeds of these species.	Weed eradication should be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Areas of construction must be clearly demarcated.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	No construction or project related activities may be undertaken outside of the demarcated areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Terrestrial Ecology (Fauna & Flora) Disturbance of biodiversity due to vibration and noise: Vibration and	Equipment will be well maintained to reduce excessive noise creation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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noise will have a significant effect mainly on fauna species in the immediate vicinity of the development, due to the heavy machinery utilised. Vibration can affect a number of subterranean fauna taxa, such as burrowing mammals, reptiles and arthropods. Vibration affects these animals by causing the collapsing of burrows, and causing these animals to leave the area due to the vibration. Noise will also affect a wide range of taxa including avifauna, mammals, reptiles, amphibians and arthropods. Avifauna, especially songbirds, and amphibians may find it difficult to find mates in areas of increased noise, mammals, reptiles and arthropods may find increased noise disturbing and therefore move away from the area		Construction or Plant Development have commenced to date.					
	Activities will be restricted to the daytime.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Terrestrial Ecology (Fauna & Flora) Habitat degradation due to dust: Increased dust will occur in all areas where vegetation is cleared. Dust will be caused by excavation, and construction. Dust in the area will be greatly increased due to the dry weather conditions and the nature of the soil in the area. Dust settling on plant material can reduce the amount of light reaching the chlorophyll in the leaves, thereby reducing photosynthesis, which in turn reduces plant productivity, growth and recruitment.	Install air quality monitoring stations that determine fallout and respirable dust (PM10) concentrations that could arise from the mining activities.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date. Air monitoring programme is already implemented on site.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Terrestrial Ecology (Fauna & Flora) Effects on local migrations: Local migrations of fauna in the area may be affected by linear infrastructure, fences and buildings, due to these areas forming a barrier to migrating animals or reducing the chance of an animal surviving its migration due to collisions with vehicles on roads. This impact is likely to be low due to the greatly	The construction area can be isolated by means of a chain link fence in order to prevent animals on local migrations entering the area and being killed.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Conduct annual Biodiversity Action Plans and implement the required conditions.	Biodiversity Action Plans are being undertaken by the mine. These are however not being undertaken annually.	SAS BAP Study, 2012 EnviroSwift BAP Study, 2017 EnviroSwift BAP Study, 2019	2	3	It is recommended that annual audits on the BAP be undertaken to ensure that conditions are being implemented.	SHEQ Department



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reduced wildlife in the area due to previous disturbances in the area causing a greatly reduced species. Furthermore, many of the roads are already in use. The study area is recognised as an ESA due to being a migratory route, this requires further investigation.	The effect of roads on local migrations can be mitigated by the installation of culverts at regular intervals along the roads and the installation of drift fences towards the culverts , although these methods may not eliminate the mortalities among migrating animals, they should greatly reduce the number of animals killed on haul roads	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A clearly marked and enforced vehicle speed will be implemented on the internal mine and transportation routes.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Terrestrial Ecology (Fauna & Flora) Increased erosion: Increased erosion can eventually lead to the loss of vegetation and habitats for further species. Soils in the area are prone to erosion in areas where vegetation is cleared, this is further compounded by the fact that precipitation in the area occurs through heavy rainfall events in the form of thundershowers in summer. Furthermore, large areas will be cleared before construction leaving these areas prone to erosion.	Ensure the required erosion protection measures are monitored and corrected where necessary.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	An erosion monitoring and mitigation plan should be put in place.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Wetland Loss or Impact on NEFPA Sites	No activities are planned within 500m from any NEFPA sites. This restriction should be maintained.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Hydrology Direct impact: The removal of vegetation can lead to increased surface runoff, which may in turn alter natural surface water flows and increase siltation of watercourses as well as pollution control facilities.	Rehabilitate open areas as soon as practically possible. Self-succession should be encouraged.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Limit the areas to be cleared to the demarcated sites.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Heritage No direct impact is foreseen in this area.	In the event that heritage artefacts or graves are encountered during the excavation activities, all activities must cease and the SAHRA should be contacted to determine the way forward before construction may continue.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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Visual Direct impact: soil stripping and footprint clearance	Stripping of vegetation and soils should be undertaken within the demarcated areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Air Quality Direct impact: Dust-fallout	Implement dust monitoring around construction sites.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date. Air monitoring programme is already implemented on site.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Strictly enforced speed limits on haul roads	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Dust suppression to be implemented as per the approved EMP	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Noise The area is located within the mining area. Noise impacts are not considered to be significant but can occur during excavation and construction activities.	Equipment will be well maintained to reduce excessive noise creation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Activities will be restricted to the daytime.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Activity 3 - Establishment of Surface Infrastructure Construction & widening of Roads: Development of roads to the King Silos. Should the King/Mokaning access road be used, a link of approximately 1.5km to this road will be required. Upgrades of roads to the Bruch Silos, may require an extension of approximately 450m to existing roads. Construction of Silos and Magazines at Bruce: Two magazine areas, an emulsion silo and an ammonium nitrate silo). This area will include all ancillary required infrastructure. Construction of Silos and Magazines at King: An emulsion silo and an ammonium nitrate silo). This area will include all ancillary required infrastructure. . For the Bruce and King expansions combined a total storage of 195m³ (emulsion: 113m³) ammonium nitrate: 82m³)							
Geology The establishment of the Low-Grade Sorter Plant may result in the sterilisation of mineable reserves.	Exploration studies should be fast tracked in this area to determine whether future mining would be required in this area. In the event that this is required, the Licence Holder should proactively apply for an amendment to the Low-Grade ROM Sorter Plant authorisation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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Topography Direct impact: Alteration of topography	Demarcate footprint area clearly	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Soil, Land Use and Land Capability Direct impact: Soil compaction	Activities should be restricted to the cleared areas and associated impacts as presented as part of Activity 1 and 2 above.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Soil, Land Use and Land Capability Direct impact: Construction activities with surrounding exposed soil may in turn lead to soil erosion.	Ensure that all design drawings include effective erosion control measures.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date. Design drawings have as yet not been completed.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Ensure the required erosion protection measures are monitored and corrected where necessary.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Natural vegetation establishment (self-succession) will be encouraged.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The mine will investigate an appropriate seed mix for the rehabilitation purposes should self-succession not establish on rehabilitated sites.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Areas of construction must be clearly demarcated. No construction or project related activities may be undertaken outside of the demarcated areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clean and dirty water systems must be established prior to construction.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Where vegetation cannot be established during the life of construction and operations, appropriate measure will be taken to control erosion. These will include grading of surfaces to	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	prevent rapid run-off of storm water and / or the use of energy dissipaters.						
Hydrology Direct impact: The removal of vegetation as part of the previous Activities 1 & 2 can lead to increased surface runoff, which may in turn alter natural surface water flows and increase siltation of watercourses as well as pollution control facilities.	Limit the areas to be where construction is undertaken to the demarcated sites.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clean and dirty systems should be included at all new activities. For the Silos, all dirty water should be contained, and routed to a sump for evaporation. For the Plant area, the runoff water to the north will follow to the existing PCD on site, the water to the west will run towards the Low-Grade ROM Stockpile, from where it will evaporate.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Maintain clean and dirty water system.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Air Quality Direct impact: Dust-fallout	Implement dust monitoring around construction sites.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date. Air monitoring programme is already implemented on site.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Strictly enforced speed limits on haul roads	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Dust suppression to be implemented as per the approved EMP	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Noise Direct impact: Construction activities will increase the ambient noise levels in the area. This is however only temporary.	Vehicles will be equipped with mufflers where practical to reduce the emission of noise.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Where noise becomes a nuisance management measures will be investigated and implemented to address these.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	Construction activities will be limited to the hours of 7h00 to 18h00 weekdays.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Equipment will be well maintained to reduce excessive noise creation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Activity 4: Waste Management Hydrocarbon spills within the mining area							
Groundwater Large scale hydrocarbon spills could be present at the mining area	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	No activities associated with hydrocarbons and/or chemicals may be undertaken outside of an effectively designed and contained area.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All used oils must be removed from site by a licensed company and disposed of at a suitably licensed site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any spills occurring during the collection process must be cleaned up immediately.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any significant spills must be captured in the incident reports and must be reported to the relevant department (NCDENC, WUA, CMA, and DWS).	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A clean up procedure (i.e. Works Instruction) must be in place.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Soils Contamination of soil resources due to	Storage of fuels and oils, the refuelling of vehicles and equipment maintenance must be	The Licence Holder is aware of this condition, no activities in terms of Silo	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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hydrocarbon spills.	limited to designated, banded (bunds to be 110% of volume of the materials stored) areas.	Demolition, Construction, Road Construction or Plant Development have commenced to date.					
	All fuels and soils must be stored in appropriate containers.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Chemicals and hazardous material must be stored in suitable containers, fit for purpose and in line with SDS requirements.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Where drip trays are too small, specially prepared, non-pervious bunds with solution trenches must be used to capture spillages	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Oils and potentially hazardous materials must be disposed of at a licensed facility and waste certificates obtained.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A spill kit must be provided to be used in the event of a spill.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	If a spill occurs, the contaminated soil must be removed immediately. Contaminated soil must be stored according to best practices until it can be disposed of at a suitably licensed facility.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Safety signage must be used at designated storage areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All workers must undergo an induction which includes environmental awareness training to make them aware of the environmental incident management procedures as well as the importance	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Soils Contamination of surface water resources. There are no surface water	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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resources in the area, however, the natural runoff, which must be managed internally on site could become impacted Spill and Release of Waste Material and Contaminated Water.		Construction or Plant Development have commenced to date.					
	Vehicles/machinery will be regularly monitored and maintained. Maintenance programmes will be established and implemented.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All used oils must be removed from site by a licensed company and disposed of at a suitably licensed site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any spills occurring during the collection process must be cleaned up immediately.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Soil that has been contaminated by spillages, seepages and leachates will be sampled and analysed. If necessary, the soils will be treated, ameliorated or removed for safe disposal.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any significant spills must be captured in the incident reports and must be reported to the relevant department (NCDENC, WUA, CMA, and DWS). In this event a remediation strategy should be developed and enforced.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A clean up procedure (i.e. Works Instruction) must be in place.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Groundwater Handling or Hazardous Waste within workshops and general mine area.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	Hazardous waste handling should only take place within bunded and/or lined areas, with a capacity of at least 110% of the volume stored.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Hazardous waste should be removed by a Licenced removal company and taken to a suitable and Licenced landfill site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Documentation of removal and safe disposal must be available on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Groundwater Handling and Storing of Domestic Waste Spill and Release of Waste Material and Contaminated Water.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The landfill site at Khumani must be operated in line with the Environmental Authorisation requirements and conditions.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	This landfill site, may only be utilised for domestic and general waste, no industrial or hazardous waste will be dumped on this site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Recycling practices must be investigated and implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	Ongoing rehabilitation of the landfill site must be undertaken, by covering and shaping the facility regularly.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department.
	Groundwater monitoring must be undertaken in such a manner as to ensure that any potential impacts from the landfill site can be detected.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date. A detailed Groundwater Monitoring Programme is in place on site.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Ecology The unmanaged disposal of waste, could result in the spread of invader species, as well as the influx of opportunistic species.	Develop dedicated waste handling areas; prevent access to rodents and opportunistic species; prevent the spread of waste.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Develop dedicated waste handling areas, fit for purpose and prevent the spread of waste.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Surface Water Handling of Hazardous Waste within workshops and general mine area could contaminate the dirty water storage areas. The water is then reused in the system and could have impacts on the integrity of the storm water system and also the production.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A detailed waste management strategy will be established and implemented, which will clearly demarcate the containments for different waste streams.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Hazardous waste handling should only take place within bunded and/or lined areas.	The Licence Holder is aware of this condition, no activities in terms of Silo	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Demolition, Construction, Road Construction or Plant Development have commenced to date.					
	Hazardous waste should be removed by a Licenced removal company and taken to a suitable and Licenced landfill site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Documentation of removal and safe disposal must be available on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The mine will adopt a cradle-to grave approach to ensure that the waste is removed and disposed of in a legally compliant manner.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Weekly inspections of Storm Water Management Systems must be undertaken. Any blockages or maintenance requirements must be documented, and an action plan developed.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Surface Water Handling and Storing of Domestic Waste should have no impact on the surface water resources due to the location of the facility. However, incorrect disposal of waste could hamper the integrity of the storm water system. Spill and Release of Waste Material and Contaminated Water.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Weekly inspections of Storm Water Management Systems must be undertaken. Any blockages or maintenance requirements must be documented, and an action plan developed.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The landfill site at Khumani must be operated in line with the Environmental Authorisation requirements and conditions.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	Access control must be strictly enforced.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The berm around upstream of the facility must be maintained.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Recycling practices must be investigated and implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Ongoing rehabilitation of the landfill site must be undertaken, by covering and shaping the facility.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Groundwater monitoring must be undertaken in such a manner as to ensure that any potential impacts from the landfill site can be detected.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date. A detailed Groundwater Monitoring Programme is in place on site.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
EMPR Table 16: Operational Phase Impact Assessment and Management Measures (Significance before Mitigation –SbM; Significance after Mitigation – SaM)							
Activity 1 - Operation of low-grade sorter plant, silos and magazines							
Geology The establishment of the Low-Grade Sorter Plant may result in the sterilisation of mineable reserves.	Exploration studies should be fast tracked in this area to determine whether future mining would be required in this area. In the event that this is required, the Licence Holder should proactively apply for an amendment to the Low-Grade ROM Sorter Plant authorisation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Soil, Land Use and Land Capability Spills around the silos may result in the contamination of soils.	Any emulsion or other contaminants should be collected, and the soils remediated immediately.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Ecology Presence of invader species could impact on the natural succession of	A weed eradication programme will be developed and implemented to eradicate weeds	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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vegetation on the slopes of WRDs.	and invader plants and to prevent new invasions during the ongoing mining operation.	Construction or Plant Development have commenced to date.					
		The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Where self-succession does not establish, harvested seeds and plants must be used in concurrent rehabilitation for any areas along the area which may be affected.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Compile list of protected and Red Data species, compile relocation programme.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All employees must undergo an induction prior to construction where they will be made aware of the footprint, prohibited areas and the importance of compliance with management measures, as well as potential penalties for noncompliance.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
		The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
		The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Hydrology Risk of surface water contamination as a result of plant and silo a related activity.	Clean and dirty systems should be included at all new activities. For the Silos, all dirty water should be contained, and routed to a sump for evaporation. For the Plant area, the runoff water to the north will follow to the existing PCD on site, the water to the west will run towards the Low-Grade ROM Stockpile, from where it will evaporate.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Hydrology Exposed soils will be susceptible to soil erosion.	The Storm Water Management Plan as per the 2016 WULA will be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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Hydrology Discharge of contaminated water during maintenance and shutdown practices.	The existing storm water dam to the west of the proposed plant should be utilised to contained water during maintenance and shutdown procedures to reduce the presence of dirty water ponding in these areas during these times.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The storm water runoff on the south, south-east and north, will naturally gravitate towards the Low-Grade Stockpile J. This stockpile will therefore serve as a constructed berm to contain dirty water.						
	Paddocks must be constructed downgradient of all stockpiles (Low-Grade ROM stockpiles) on site to contain any seep from these facilities according to the approved EMPs.						
	A detailed water conservation and demand management plan should be developed to optimise water reuse in the plant circuit.						
	The capacities of the water containment infrastructure (clarifier, Thickener, etc.) should be revisited and managed to ensure that a freeboard of 0.8m can be maintained.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Ensure that fuels, lubricants and chemicals for use in the operational areas are stored in properly bunded and protected areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Air Quality The use of unsurfaced roads, plant crushing equipment, presence of stockpiles and the transfer points at conveyors may lead to an increase of dust emissions in the area.	Install air quality monitoring stations that determine fallout and respirable dust (PM10) concentrations that could arise from the mining activities.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date. Air monitoring programme is already implemented on site.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Dust extraction systems comprising of wet scrubbers will be installed at the secondary and tertiary crushing and screening plants. For crushing and screening operations at metallic mineral processing plants, fugitive dust can be controlled with wet scrubbers or baghouses. Chemical dust suppression systems will be	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	implemented at the primary crushing and screening plants.						
	Tarpaulins will be placed over all vehicles transporting product.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Noise Increase in noise levels in and around the plant areas.	Machinery and vehicles will be well maintained to prevent excessive noise and to comply with national and provincial regulations.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Implement a noise monitoring network.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Implemented operational controls on equipment used in the workshops, plant and buildings to reduce noise levels where required.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Geohydrology Handling of ROM, Emulsions, and hydrocarbons may lead to contaminated water ponding on site.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	No activities associated with hydrocarbons and/or chemicals may be undertaken outside of an effectively designed and contained area.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A dedicated area for the placement of waste skips must be determined prior to construction activities. Waste will be temporarily stored in the dedicated area until it is collected and disposed of at the approved Khumani waste disposal area. All used oils must be removed from site by a licensed company and disposed of at a suitably licensed site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any spills occurring during the collection process must be cleaned up immediately.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	Any significant spills must be captured in the incident reports and must be reported to the relevant department (NCDENC, WUA, CMA, and DWS).	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A clean up procedure (i.e. Works Instruction) must be in place.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Geohydrology Managing the existing King PCD and Bruce PCD on site.	All dirty water must be contained in fit for purpose designed tanks or in lined dams.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	These facilities must be inspected regularly and replaced if indications exist of leaks.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Where leaks or seepage is found, these must be inspected and fixed as soon as found.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The water balance must be updated annually, with a strong focus on improving the management of the internal water circuit on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
		The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The water circuit must be managed at one central location to ensure that there is integration between the plant, and general surface water needs and requirements.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Upstream and downstream monitoring boreholes must be available to monitor groundwater quality and to detect potential leaks from these facilities.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Activity 2 - Stockpiling ROM and low-grade material within the silo footprint area							



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Geology The establishment of the Low-Grade Sorter Plant may result in the sterilisation of mineable reserves.	Exploration studies should be fast tracked in this area to determine whether future mining would be required in this area. In the event that this is required, the Licence Holder should proactively apply for an amendment to the Low-Grade ROM Sorter Plant authorisation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Topography The stockpiling of material will impact on the micro and macro topography due to the establishment of the stockpiles.	Stockpiles will only be placed within the designated mine area boundaries.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Hydrology Runoff from stockpiles due to rainfall could cause seepage which may impact on the clean water resources.	Clean and dirty systems should be included at all new activities. For the Silos, all dirty water should be contained, and routed to a sump for evaporation. For the Plant area, the runoff water to the north will follow to the existing PCD on site, the water to the west will run towards the Low-Grade ROM Stockpile, from where it will evaporate. All water management systems to conform to the GN704 requirements (note that the 1999 Regulations are in the process of being amended).	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Geohydrology Impacts on the groundwater regime as a result of infiltration.	Clean water needs to be kept away from the stockpiling area to minimise water infiltrating from the site. Keep stockpiles as small as possible, to minimise their footprint.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	No additional Waste Rock Dumps with the exception of those already approved on site will be constructed as part of this project.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Air Quality The use of unsurfaced roads, plant crushing equipment, presence of stockpiles and the transfer points at conveyors may lead to an increase of dust emissions in the area.	Install air quality monitoring stations that determine fallout and respirable dust (PM10) concentrations that could arise from the mining activities.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date. Air monitoring programme is already implemented on site.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Tarpaulins will be placed over all vehicles transporting product.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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Activity 3: Operation of the Infrastructure							
Transportation (conveyors, rail, haul roads and access roads)							
New roads to the King Silos (approximately 1.5km, of which 800m will amount to new clearing) and upgrades of roads to the Bruch Silos (approximately 500m).							
Soil Contamination of Soil due to hydrocarbon spills	Vehicles and Machinery will be regularly maintained. Maintenance programmes will be established and implemented.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All refuelling of vehicles and equipment maintenance must be done within designated bunded areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	If necessary, the polluted soils will be remediated, and affected areas rehabilitated.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Soil Spills from conveyors.	Ongoing maintenance around transfer points should be undertaken.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any spills of ROM around the conveyor systems should be collected and taken to designated ROM stockpile areas	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Ecology The establishment of Weeds and Invader Species.	A weed eradication programme will be developed and implemented to eradicate weeds and invader plants and to prevent new invasions during the ongoing mining operation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Where self-succession does not establish, harvested seeds and plants must be used in concurrent rehabilitation for any areas along the area which may be affected.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Ecology Accidental death of animals on the roads.	Clearly marked signs will be erected along the transportation routes to create awareness of animal crossings.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	A clearly marked and enforced vehicle speed will be implemented on the internal mine and transportation routes.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A detailed induction programme will be in place to ensure that all parties are aware of the rules and regulations on site in terms of the use of roads.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Vehicles may only travel on demarcated roads on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Surface Water Contamination of surface water resources. There are no surface water resources in the area, however, the natural runoff, which must be managed internally on site could become impacted	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Manage storm water flow with temporary erosion control measures where possible (cut-off trenches or berms)	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Railways and conveyors will be maintained and constructed with the appropriate culverts and drains, levelling and surfacing to ensure adequate drainage.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Vehicles/machinery will be regularly monitored and maintained. Maintenance programmes will be established and implemented.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All used oils must be removed from site by a licensed company and disposed of at a suitably licensed site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any spills occurring during the collection process must be cleaned up immediately.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	Soil that has been contaminated by spillages, seepages and leachates will be sampled and analysed. If necessary, the soils will be treated, ameliorated or removed for safe disposal.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any significant spills must be captured in the incident reports and must be reported to the relevant department (NCDENC, WUA, CMA, and DWS). In this event a remediation strategy should be developed and enforced.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A clean up procedure (i.e. Works Instruction) must be in place.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Air Quality The use of unsurfaced roads may lead to an increase of dust emissions in the area.	Install air quality monitoring stations that determine fallout and respirable dust (PM10) concentrations that could arise from the mining activities.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Dust suppression should be undertaken regularly to prevent dust emissions.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	During operational phase of the mine, haulage roads will be treated with dust suppression techniques such as wet to reduce dust creation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Tarpaulins will be placed over all vehicles transporting product.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Noise Noise of vehicles traversing the access roads will be almost constant	Machinery and vehicles will be well maintained to prevent excessive noise and to comply with national and provincial regulations.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All vehicles will have muffles to minimise noise emissions, where necessary.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	Where noise becomes a nuisance noise management measures will be investigated and implemented to address these concerns	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Implement a noise monitoring network.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Noise monitoring will be undertaken (ambient conditions) to ensure that noise levels comply with Health and Safety Standards.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Activity 4: Waste Management							
Hydrocarbon spills within the mining area							
Groundwater Large scale hydrocarbon spills could be present at the mining area	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	No activities associated with hydrocarbons and/or chemicals may be undertaken outside of an effectively designed and contained area.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All used oils must be removed from site by a licensed company and disposed of at a suitably licensed site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any spills occurring during the collection process must be cleaned up immediately.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any significant spills must be captured in the incident reports and must be reported to the relevant department (NCDENC, WUA, CMA, and DWS).	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A clean up procedure (i.e. Works Instruction) must be in place.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



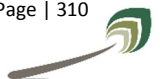
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		Construction or Plant Development have commenced to date.					
Soils Contamination of soil resources due to hydrocarbon spills.	Storage of fuels and oils, the refuelling of vehicles and equipment maintenance must be limited to designated, bunded (bunds to be 110% of volume of the materials stored) areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All fuels and soils must be stored in appropriate containers.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Chemicals and hazardous material must be stored in suitable containers, fit for purpose and in line with SDS requirements.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Where drip trays are too small, specially prepared, non-pervious bunds with solution trenches must be used to capture spillages	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Oils and potentially hazardous materials must be disposed of at a licensed facility and waste certificates obtained.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A spill kit must be provided to be used in the event of a spill.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	If a spill occurs, the contaminated soil must be removed immediately. Contaminated soil must be stored according to best practices until it can be disposed of at a suitably licensed facility.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Safety signage must be used at designated storage areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All workers must undergo an induction which includes environmental awareness training to make them aware of the environmental incident	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	management procedures as well as the importance	Construction or Plant Development have commenced to date.					
Soils Contamination of surface water resources. There are no surface water resources in the area, however, the natural runoff, which must be managed internally on site could become impacted	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Vehicles/machinery will be regularly monitored and maintained. Maintenance programmes will be established and implemented.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All used oils must be removed from site by a licensed company and disposed of at a suitably licensed site	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any spills occurring during the collection process must be cleaned up immediately.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Soil that has been contaminated by spillages, seepages and leachates will be sampled and analysed. If necessary, the soils will be treated, ameliorated or removed for safe disposal.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Any significant spills must be captured in the incident reports and must be reported to the relevant department (NCDENC, WUA, CMA, and DWS). In this event a remediation strategy should be developed and enforced.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A clean up procedure (i.e. Works Instruction) must be in place.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Groundwater Handling or Hazardous Waste within workshops and general mine area.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.
Waste management training must be implemented on site.		The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Hazardous waste handling should only take place within banded and/or lined areas, with a capacity of at least 110% of the volume stored.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Hazardous waste should be removed by a Licenced removal company and taken to a suitable and Licenced landfill site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Documentation of removal and safe disposal must be available on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Groundwater	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The landfill site at Khumani must be operated in line with the Environmental Authorisation requirements and conditions.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	This landfill site, may only be utilised for domestic and general waste, no industrial or hazardous waste will be dumped on this site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	Recycling practices must be investigated and implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Ongoing rehabilitation of the landfill site must be undertaken, by covering and shaping the facility regularly.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Groundwater monitoring must be undertaken in such a manner as to ensure that any potential impacts from the landfill site can be detected.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Ecology The unmanaged disposal of waste, could result in the spread of invader species, as well as the influx of opportunistic species.	Develop dedicated waste handling areas; prevent access to rodents and opportunistic species; prevent the spread of waste.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Develop dedicated waste handling areas, fit for purpose and prevent the spread of waste.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Surface Water Handling of Hazardous Waste within workshops and general mine area could contaminate the dirty water storage areas. The water is then reused in the system and could have impacts on the integrity of the storm water system and also the production.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A detailed waste management strategy will be established and implemented, which will clearly demarcate the containments for different waste streams.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	Hazardous waste handling should only take place within bunded and/or lined areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Hazardous waste should be removed by a Licenced removal company and taken to a suitable and Licenced landfill site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Documentation of removal and safe disposal must be available on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The mine will adopt a cradle-to-grave approach to ensure that the waste is removed and disposed of in a legally compliant manner.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Weekly inspections of Storm Water Management Systems must be undertaken. Any blockages or maintenance requirements must be documented, and an action plan developed.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Surface Water Handling and Storing of Domestic Waste should have no impact on the surface water resources due to the location of the facility. However, incorrect disposal of waste could hamper the integrity of the storm water system.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Weekly inspections of Storm Water Management Systems must be undertaken. Any blockages or maintenance requirements must be documented, and an action plan developed.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	The landfill site at Khumani must be operated in line with the Environmental Authorisation requirements and conditions.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Access control must be strictly enforced.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The berm around upstream of the facility must be maintained.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Recycling practices must be investigated and implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Ongoing rehabilitation of the landfill site must be undertaken, by covering and shaping the facility.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Groundwater monitoring must be undertaken in such a manner as to ensure that any potential impacts from the landfill site can be detected.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
EMPR Table 17: Decommissioning and Closure Phase Impact Assessment and Management Measures (Significance before Mitigation – SbM; Significance after Mitigation – SaM)							
Closure and Decommissioning Phase							
Legal Requirements (Environmental Permits) South Africa Enviro-Legal Requirements Unlawful activities could lead to NWA Directives and Section 24G Rectification fines.							
	A legal assessment of all Water Uses must be undertaken annually to ensure that all Water Uses are licensed.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A detailed closure plan must be developed and submitted to the relevant departments for approval.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	All legally appointed personnel responsible or involved in water use activities on site must receive training on the requirements of the WUL.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Quarterly integral audits must be undertaken on the lawful implementation of the WUL.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Water Use Licence must be available on site at all times.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The legal register must be updated to indicate all updated water uses.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
<p>Activity 1 - Land and Footprint Clearance Construction & widening of Roads: Development of roads to the King Silos. Should the King/ Mokaning access road be used, a link of approximately 1.5km to this road will be required. Upgrades of roads to the Bruch Silos, may require an extension of approximately 450m to existing roads. Construction of Silos and Magazines at Bruce: Two magazine areas, an emulsion silo and an ammonium nitrate Silo). This area will include all ancillary required infrastructure. Activity 1 - Land and Footprint Clearance Construction of Silos and Magazines at King: An emulsion silo and ammonium nitrate silo). This area will include all ancillary required infrastructure. combined a total storage of 195m³ (emulsion: 113m³) ammonium nitrate: 82m³) Laying of the pipelines within undisturbed areas: A pipeline route of approximately 800m will be required between point A1 and the two water supply areas P1 and P2. Activity 2 - Topsoil Stripping and Stockpiling Construction & widening of Roads: Development of roads to the King Silos. Should the King/ Mokaning access road be used, a link of approximately 1.5km to this road will be required. Upgrades of roads to the Bruch Silos, may require an extension of approximately 450m to existing roads. Construction of Silos and Magazines at Bruce: Two magazine areas, an emulsion silo and an ammonium nitrate silo). This area will include all ancillary required infrastructure. Construction of Silos and Magazines at King: An emulsion silo and an ammonium nitrate silo). This area will include all ancillary required infrastructure. For the Bruce and King expansions combined a total storage of 195m³ (emulsion: 113m³) ammonium nitrate: 82m³)</p>							
Geology	No direct impact	No condition to assess.	-			-	-
Topography Removal of infrastructure may impact on the topography. Alteration of surface topography.	Linear Infrastructure constructed by the mine (roads, conveyors, railway lines, power lines) will be removed if it proves to inhibit land use at decommissioning. Where possible infrastructure will remain for social investment opportunities, this will be decided in conjunction with the	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	Integrated Development Plan of the area ant eh local authorities.						
	All haul roads and access roads will be rehabilitated by ripping these structures to a depth of 500mm.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All fences erected around the infrastructure be dismantled and either disposed of at a permitted disposal site or sold off as scrap (provided that these structures will no longer be required by the post mining landowner). Fences erected to cordon off dangerous excavations will remain in place and will be maintained as and when required.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The silos will be removed by the operational responsible contractor (such as Sasol Nitro, or the relevant company at that time).	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The overland conveyors and railway lines, if not used as a community initiative, will be dissembled and the components removed from the site. The material can either be sold as a unit or the components sold as scrap.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Soil, Land Use and Land Capability Spills around the silos may result in the contamination of soils.	Any emulsion or other contaminants should be collected, and the soils remediated immediately.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Soil, Land Use and Land Capability Loss of soils due to decommissioning activities present on site.	Draw up a plan clearly defining the area where the removal of infrastructure should take place. Implement the plan with sufficient measures in place not to compact new areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Implement a strict penalty fine system for rule breaking with regard to vehicular movement.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
		The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	Maintain clean and dirty water systems and undertake regular monitoring and maintenance thereof.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Ecology The establishment of Weeds and Invader Species.	A weed eradication programme will be developed and implemented to eradicate weeds and invader plants and to prevent new invasions during the ongoing mining operation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Where self-succession does not establish, harvested seeds and plants must be used in	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Ecology Direct impact: Unplanned loss of floral and faunal species of conservation importance	Prior to the removal of plant species, an ecologist should investigate the site (if not already done) to record all species of importance and which should be removed under tree removal permits. All such species should be demarcated by signage or tape.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Obtain tree removal permit prior to the removal of any protected species.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The pipeline proposed between P2/P1 and A1 should be rerouted if practically possible to avoid the floodplain vegetation and rather be rerouted to run through the Vachellia mellifera thicket to the south of the current route as shown in Figure 20 where possible.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The pending offset area should be finalised to contribute to the overall conservation of sensitive and red data species.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All employees, or contractors on site should receive a detailed induction on the expectations for the protection of fauna and flora on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Weed eradication should be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
Ecology Accidental death of animals on the roads.	Clearly marked signs will be erected along the transportation routes to create awareness of animal crossings.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A clearly marked and enforced vehicle speed will be implemented on the internal mine and transportation routes.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	A detailed induction programme will be in place to ensure that all parties are aware of the rules and regulations on site in terms of the use of roads.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Vehicles may only travel on demarcated roads on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Wetlands Loss or Impact on NEFPA Sites	No activities are planned within 500m from any NEFPA sites. This restriction should be maintained	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Hydrology Erosion control over rehabilitated areas and the prevention of erosion gullies.	The topography of all disturbed areas must be rehabilitated in such a manner that the surrounding natural area blends naturally with the rehabilitated areas well as to be free draining. This will reduce soil erosion and improve natural re-vegetation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Hydrology Contamination of surface water as a result of removal of infrastructure.	The detailed waste management strategy implemented during the construction and operation phases must be continuously implemented throughout the closure and decommissioning phase.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Hydrology Rubble and waste from site could pollute local water resources	Waste that is not removed from site should be spread, covered and suitably rehabilitated.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Visual Fugitive dust emissions as a result of infrastructure removal and associated	The dust monitoring network and dust suppression programme established during the construction phase of the project will be	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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exposed/bare areas may have an impact in terms of air quality and visual characteristics.	maintained throughout the closure phase of the mine. With respect to haul road dust levels, it is recommended to limit vehicle speeds, especially during high risk periods of high winds, high temperature and low humidity.	Construction or Plant Development have commenced to date.					
	Establish and implement a dust suppression plan in consultation with the environmental control officer and an air quality specialist as part of the contractor's responsibility.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Air Quality All activities associated with the removal of infrastructure and rehabilitation has the potential to release dust.	The dust monitoring network and dust suppression programme established during the construction phase of the project will be maintained throughout the closure phase of the mine. With respect to haul road dust levels, it is recommended to limit vehicle speeds, especially during high risk periods of high winds, high temperature and low humidity.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Noise All activities associated with the removal of infrastructure and rehabilitation has the potential to generate noise.	The removal of all infrastructure is to take place during daytime periods only.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Where noise becomes a nuisance, management measures will be investigated and implemented to address these.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department.
Social Disruption and nuisance factors associated with the actual decommissioning such as noise, visual and traffic related impacts.	Local residents, with the focus on the surrounding landowners, should receive accurate information with regards to the project status, timeframes for decommissioning and other relevant information about issues that could influence their daily living and movement patterns.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Activity 2: Earth Moving, shaping and ripping of ground							
Topography The shaping of the site should be undertaken in such a manner that it improves the overall topography of the site.	None	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Soil, Land Use and Land Capability Soil erosion	Re-vegetate as soon as possible	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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Soil, Land Use and Land Capability Ripping and topsoil replacement will restore the soil physical characteristics prior to re-vegetation.	Compacted soils will be ripped, and topsoil will be replaced. After the topsoil has been replaced the area should be ameliorated and seeded, should self-succession of vegetation not take place. Only species indigenous to the area will be included.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Terrestrial Ecology (Fauna & Flora) The rehabilitation of the site will allow reestablishment of natural vegetation.	Compacted soils will be ripped, and topsoil will be replaced. After the topsoil has been replaced the area should be ameliorated and seeded, should self-succession of vegetation not take place. Only species indigenous to the area will be included. Remove alien vegetation post decommissioning, with long term follow-up afterwards.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Hydrology Runoff from rehabilitated areas will impact on watercourses especially during intensive rainstorms especially if the area is not free draining.	Berms, should they be necessary, must remain upstream and downstream of the dumps and stockpiles to ensure that clean water is kept separate from dirty water until the area is free draining and re-vegetation has occurred.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Visual The rehabilitation (ripping, topsoil replacement and landscaping) will remove the visual incongruity.	An overall visual improvement will be noticed once all mining related infrastructure has been demolished and the area has been landscaped and re-vegetated.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Demarcate the decommissioning area and limit the decommissioning activities as far as possible.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Final shaping will be implemented such that the final profile of the rehabilitated areas is formed to emulate natural contours of the area.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Foundations will be removed to a depth of 1 m below the surface and the area rehabilitated.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All material recovered from the demolition of buildings and/or structures will either be transported to a permitted disposal site, or made available to the local community as building materials (provided they are in a satisfactory condition following demolition).	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	Linear infrastructure constructed by the mine (i.e. roads, conveyors and power lines) will be removed if it proves to inhibit land use at decommissioning.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All fences erected around the mine will be dismantled and disposed of at a permitted disposal site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Air Quality All activities associated with the removal of infrastructure has the potential to release dust.	Dust sampling will be undertaken on a monthly basis and analysed according to the prescribed monitoring programme contained in the EIA/EMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Monthly monitoring reports will be generated by the mine or through a suitably qualified air quality specialist.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	In the event that air quality or dust issues are identified based on the monitoring programme, an independent specialist should be appointed to determine the best course of action to ameliorate the situation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Noise All activities associated with the removal of infrastructure and rehabilitation has the potential to generate noise.	The removal of all infrastructure is to take place during daytime periods only. Where noise becomes a nuisance, management measures will be investigated and implemented to address these.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Machinery with low noise levels and maintained in a good order to be used and to comply with the IFC's Health and Safety Regulations.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Speed control measures will be implemented by the mine through the placement of adequate signage.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Implement a penalty system for non-compliance to speed control measures and ensure that all workers are made aware of the penalty systems.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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	Gravel roads to be maintained in as good and smooth a condition as possible.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Activity 2: Earth Moving, shaping and ripping of ground							
Socio-Economic Plant, store and workshop areas could benefit the local community.	Instead of demolition of certain areas, these areas could be sold off as commercial property for use in the local community.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Socio-Economic Loss of Employment.	The mine should continue with the skills development programme and Social and Labour Plan commitments to empower the workforce to undertake other economically viable activities.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Groundwater Handling or Hazardous Waste within workshops and general mine area.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Hazardous waste handling should only take place within bunded and/or lined areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Hazardous waste should be removed by a Licenced removal company and taken to a suitable and Licenced landfill site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Documentation of removal and safe disposal must be available on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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Groundwater Handling of Building Rubble	All infrastructure will be removed and rehabilitated, should no alternative use be found for the structures.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Foundations will be removed to a depth of 1m below surface.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	All building rubble will follow the waste hierarchy and will therefore either be sold for reuse where possible, disposed of within opencast pits (with the necessary approvals in place by the regulatory authority for the disposal of building rubble and as per the 2009 EMP) and as a last option be disposed of at a licensed facility suitable for such waste.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Groundwater Handling and Storing of Domestic Waste	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The landfill site at Khumani must be operated in line with the Environmental Authorisation requirements and conditions.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Recycling practices must be investigated and implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Ongoing rehabilitation of the landfill site must be undertaken, by covering and shaping the facility.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	Groundwater monitoring must be undertaken in such a manner as to ensure that any potential impacts from the landfill site can be detected.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Surface Water Handling of Hazardous Waste within workshops and general mine area could contaminate the dirty water storage areas. The water is then reused in the system and could have impacts on the integrity of the storm water system and also the production.	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Hazardous waste handling should only take place within bunded and/or lined areas.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Hazardous waste and contaminated materials should be removed by a Licenced removal company and taken to a suitable and Licenced landfill site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Documentation of removal and safe disposal must be available on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Weekly inspections of Storm Water Management Systems must be undertaken. Any blockages or maintenance requirements must be documented, and an action plan developed.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Surface Water Handling and Storing of Domestic Waste should have no impact on the	Clean and Dirty water separation systems should be incorporated in terms of the 2016 SWMP.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.



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surface water resources due to the location of the facility. However, incorrect disposal of waste could hamper the integrity of the storm water system.		Construction or Plant Development have commenced to date.					
	Waste management training must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Weekly inspections of Storm Water Management Systems must be undertaken. Any blockages or maintenance requirements must be documented, and an action plan developed.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Clear signs informing staff of waste management practices must be implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The landfill site at Khumani must be operated in line with the Environmental Authorisation requirements and conditions.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Building rubble must be disposed of in line with the requirements of the NEM:WA.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Access control must be strictly enforced.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	The berm around upstream of the facility must be maintained.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Recycling practices must be investigated and implemented on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Ongoing rehabilitation of the landfill site must be undertaken, by covering and shaping the facility.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department



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		Construction or Plant Development have commenced to date.					
	Groundwater monitoring must be undertaken in such a manner as to ensure that any potential impacts from the landfill site can be detected.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Air Quality The area is located within the mining area and neighbouring the Village Opencast Pit. Dust emissions is not considered to be significant but can occur during excavation and construction activities.	Dust suppression should be undertaken where and when dust is present.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Noise The area is located within the mining area and neighbouring the Village Opencast Pit. Noise impacts are not considered to be significant but can occur during excavation and construction activities.	Equipment will be well maintained to reduce excessive noise creation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
	Activities will be restricted to the daytime.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	SHEQ Department
Compliance Rating				17	18	94,44%	



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Table 18: Environmental Audit: Silo Relocation and additional activities, (27 July 2018)

Number/ Description	Requirement	Observation	Source Document/Observation			Recommendation	Responsible person
ROD Requirements							
The applicant is herein authorised to undertake the following alternative related to the listed activity/ies:							
	Description of the activities to be undertaken: Proposed activities at the King silo, Parson and Bruce will entail the following: <ul style="list-style-type: none"> • Clearing of vegetation of 1.7ha. Silos relocation. • The widening of the existing road and the development of the road. • Expansion or changes to the existing facilities for any process. • Development of storage and handling of a dangerous goods. • Decommissioning of existing facilities, structure or infrastructure, 						
E. CONDITIONS OF AUTHORISATION							
1	This environmental authorisation is conditional upon the implementation of the Environmental Management Programme identified and signed by the Regional Manager on today's date being implemented in full.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations	T/N	T/N	No further recommendations.	-
2	This environmental authorisation does not absolve the holder of its obligation to comply with the requirements of the National Water Act, Specific Environmental Management Acts and any other applicable legislation	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations	T/N	T/N	No further recommendations.	-
3	The environmental authorisation for the listed activities must commence within 10 years.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations	T/N	T/N	The activities associated with this Environmental Authorisation must commence by 26 July 2028.	SHEQ Department
4	The listed activities, including site preparation, must not commence within 20 (twenty) calendar days of the date of the notification of the decision being sent to the registered Interested and Affected Parties ("I&APs"). In the event that an appeal is lodged with the appeal administrator, the effect of this environmental authorisation is suspended until such time as the appeal is decided.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations	3	3	No further recommendations.	-
5	The applicant must in writing, within 14 (fourteen) calendar days of the date of this decision and in accordance with Regulation 4(2)	All registered stakeholders were notified of the Environmental Authorisation on 7 August 2018 via email, which attached a notification letter with all the details as required in this Condition.	Notification Letter and proof of emails dated 7 August 2018.	3	3	No further recommendations.	-
5.1	Notify all registered and affected parties of - the outcome of the application; the reasons for the decision as included in Annexure 1; <ul style="list-style-type: none"> • the date of the decision; and • the date of issue of the decision; 						
5.2	draw the attention of all registered I&APs to the fact that an appeal may be lodged against the decision in terms of the National Appeals Regulation, 2014 detailed in Section F below; and						
5.3	draw the attention of all registered I&APs to the manner in which they may access the decision.						



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5.4	Provide the registered interested and Affected Parties with: <ul style="list-style-type: none"> • name of the holder (entity) of this Environmental Authorisation; • name of the responsible person for this Environmental Authorisation; • postal address of the holder; • telephonic and fax details of the holder; and • e-mail address if any. 						
6	The holder is responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the holder.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations	T/N	T/N	Once tenders are issued for construction purposes, a copy of the EMP and Environmental Authorisation must be included in the contractor's pack.	SHEQ & Procurement Department
7	The holder of the EA must implement an Emergency Preparedness Plan and review it bi-annually when conducting audit and after each emergency and major incident. The holder must notify the competent authority in writing, within 24 hours thereof of the occurrence.	An Emergency Preparedness Plan is in place; however, this is not updated bi-annually, but rather every third year.	Mandatory Code of Practice for Emergency Preparedness and Response DMR Code FE4157, 29 March 2019	TBA	TBA	It is recommended that this condition be amended as part of the Regulation 29 Part 1 Amendment Process to allow for the updating of the Code of Practice in line with the Mine's overall schedules. It is recommended that this condition rather be rephrased that the Code of Practice must be updated every third year, or when there is a change to the mine layout or operation.	SHEQ Department
8	This environmental authorisation only authorises activities specified in the Environmental Management Plan ("EMP") and a new authorisation must be applied for in respect of any new activity not specified as part of the EMP	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
9	A copy of the environmental authorisation and the EMP must be kept at the site where the listed activities will be undertaken. Access to the site must be granted to any authorised official representing a competent authority. The environmental authorisation and EMP must be available on site to the aforesaid authorised official on request at all times,	A Copy of the EMP and ROD/ Environmental Authorisation is available from the Environmental SHEQ Superintendent.	Site observations.	3	3	No further recommendations.	-
10	Only activities that are expressly specified in the EMP that forms part of this authorisation may be conducted, and additional or new activities not specified herein must be applied for by the holder and authorised by the competent authority in the form of an amendment or an addendum to the aforesaid EMP before such activities may be commenced with. This condition is also applicable in the case of the amendment, addition, substitution, correction, and removal or updating of any detail in the aforesaid EMP.	The Licence Holder is aware of this condition.	Site observations.	T/N	T/N	No further recommendations.	-
11	Whenever any of the applicant's contact details, physical or postal address and/ or telephonic details change, the	The Cover Letter of the Environmental Authorisation states that the "Activities related to Low-Grade ROM	Email communication, 7 August 2019.	2	3	The Licence Holder must request a Regulation 29 Part 1 Amendment for	SHEQ Department



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	applicant must notify the competent authority in writing to that effect.	Sorter Plant and Silo Relocation on the Remaining Extent of the Farm King 561, Portion of Remainder of Farm Mokaning 260, Portion 1 of Farm Parson 564, Portion of Remainder of Parson 564, Portion 9 of Farm Brice 544...". This has been captured incorrectly from the Application Form submitted to the DMR with the Basic Assessment Report. The same is stated in the Environmental Authorisation under Section C, however the 21-digit surveyor general code information is correct. The EAP has informed the DMR of the changes on 7 August 2018 and to date no amendments have been made.				the amendments to be initiated in order to ensure that a timeframe is captured to this.	
12	Non-compliance with a condition of this environmental authorisation or EMP may result in the issuing of a directive in terms of section 28 and or a compliance notice in terms of section 31L of NEMA.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	The activities associated with this Environmental Authorisation must commence by 26 July 2028.	SHEQ Department
13	Should any heritage remains be exposed during excavations or any actions on the site, these must immediately be reported to the Provincial Heritage Resources Authority (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from the Heritage Resources Authority. Heritage remains include: archaeological remains (including fossil bones and fossil shells); coins; indigenous and/or colonial ceramics, any articles of value or antiquity; marine shell heaps; stone artefacts and bone remains; structures and other built features; rock art and rock engravings, shipwrecks; and graves or unmarked human burials.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	The activities associated with this Environmental Authorisation must commence by 26 July 2028.	SHEQ Department
14	A qualified archaeologist must be contracted where necessary (at the expense of the applicant and in consultation with the relevant authority) to remove any human remains in accordance with the requirements of the relevant authority.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	The activities associated with this Environmental Authorisation must commence by 26 July 2028.	SHEQ Department
15	The holder must appoint a suitably experienced environmental control officer ("ECO"), or site agent where appropriate, before commencement of any land clearing to ensure compliance with the EMP and the conditions contained herein.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	The activities associated with this Environmental Authorisation must commence by 26 July 2028.	SHEQ Department
16	The holder of the environmental authorisation must annually assess the environmental liabilities of the operation by using the master rates in line with the applicable Consumer Price Index (CPI) at the time and	The Financial Provision is assessed annually.	Financial Provision, May 2019.	3	3	No further recommendations.	-



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	address the shortfall on the financial provision submitted in terms of section 24P of NEMA,						
17	<p>The holder of the authorisation must appoint an independent auditor to audit the site bi-annually. This auditor must compile an environmental audit report documenting the findings of the audit.</p> <p>The audit report must:</p> <ul style="list-style-type: none"> specifically state whether conditions of this environmental authorisation and EMP/closure plan are adhered to; identify and assess any new impacts and risks as a result of undertaking the activity/ies, if applicable; identify shortcomings in the EMP/closure plan, if applicable; identify the need, if any, for any changes to the management, avoidance and mitigation measures provided for in the EMP/closure plan; if applicable, specify that the corrective action/s taken for the previous audit's non-conformities, was adequate; and be submitted by the holder to the competent authority within 30 days from the date on which the auditor finalised the audit. <p>Should any shortcomings in terms of Regulation 34(4) be identified, the holder of the authorisation must submit recommendation to amend the EMP plan in order to rectify any shortcomings identified with the aforementioned audit report.</p>	<p>To date no construction activities have commenced. The general schedule for audits in terms of the Environmental Authorisations on site is annually and not biannually.</p>	Site observations.	TBA	TBA	<p>It is recommended that this condition be amended as part of the Regulation 29 Part 1 Amendment Process to allow the auditing process to be scheduled in line with the approved Environmental Authorisations on site.</p>	SHEQ Department
18	An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be employed. Any solid waste must be disposed of at a landfill licensed in terms of the applicable legislation.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
19	The amount of waste to emanate from the activity due to its nature must be treated and disposed of to relevant licensed landfill sites (NB; no waste must be mixed during storage and or disposal process).	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
20	All employees and contractors must frequently undergo an environmental awareness training on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
21	No surface or ground water may be polluted due to any actions on the site the applicable requirements with respect to relevant legislation pertaining to water must be met prior to any extraction of water on the properties.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
22	The applicable requirements with respect to relevant legislation pertaining to cutting, damaging, disturbing or	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction,	Site observations.	T/N	T/N	No further recommendations.	-



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	destroying protected trees or trees from a natural forest must be adhered to.	Road Construction or Plant Development have commenced to date.					
23	The applicable requirements with respect to relevant legislation pertaining to occupational health and safety must be adhered to.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
24	You shall not store any fuel either above or underground, with a combined capacity of 80 cubic metres or more without an authorisation in each of the above-mentioned sites. All fuels and lubricants that are allowed to be stored in the sites must be stored inside a bounded area.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
25	Should the holder of the Authorisation ever cease, he/she must take required actions as prescribed by legislation at the time and comply with all the relevant legal requirements administered by any relevant and competent authority at that time.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
26	Any changes to or deviations from the activity description set out above must be approved in writing by the Department before such changes or deviations may be affected. In assessing whether to grant such approval or not, the Department may request information as it deems necessary to evaluate the significance and impacts of such changes or deviation and it may be necessary for the EA holder to apply for further authorisation in terms of the regulations.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
27	All the (3) pillars of sustainable development (environment, social and economic) must always be considered before commencement, during the operation and post the operation period of decommissioning by the holder.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
28	All the possible accidental effluent, oil spillages etc must be cleaned immediately at all times on site.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
29	Faunal species must not be trapped, killed or hunted during the construction period.	The Licence Holder is aware of this condition, no activities in terms of Silo Demolition, Construction, Road Construction or Plant Development have commenced to date.	Site observations.	T/N	T/N	No further recommendations.	-
Compliance Rating				14	15	93,33%	

5 ENVIRONMENTAL AUDIT OUTCOMES

According to Appendix 7 of the 2014 NEMA EIA Regulations, the objectives of the environmental audit report are to-

(a) report on-

- (i) the level of compliance with the conditions of the environmental authorisation and the EMPr, and where applicable, the closure plan; and
- (ii) the extent to which the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan achieves the objectives and outcomes of the EMPr, and closure plan.

(b) identify and assess any new impacts and risks as a result of undertaking the activity;

(c) evaluate the effectiveness of the EMPr, and where applicable, the closure plan;

(d) identify shortcomings in the EMPr, and where applicable, the closure plan; and

(e) identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan.

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

5.1 Approved Infrastructure

The following table has been sourced from the EMP submitted to the DMR and approved in 2016 and has been updated to present a list of all approved infrastructure on site which are considered in the development of the subsequent EMPs.

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Table 19: List of Approved Infrastructure

Infrastructure	Description
Roads	
N14 National Road	<p>Existing N14 National Road:</p> <p>The N14 national road traverses the Khumani property between the farms Bruce and King in a north-south direction.</p>
R325 Secondary road	<p>Existing Secondary Road (R325):</p> <p>A regional road (R325) to the town Dingleton runs through the farm Parson in a north-south direction.</p>
Access Roads	<p>Approved Access Roads:</p> <p>Access to the Plant and main administrative buildings is from the existing R325 Dingleton road. Roads to the administrative buildings are surfaced.</p> <p>Access to the King/ Mokaning operations is directly from the N14 road.</p> <p>Access to the Bruce operations is from an existing road turning off from the N14.</p> <p>Treated roads serve the plant area.</p> <p>Treated access roads have been established for access to the Bruce and King opencast operations.</p>
Haul Roads	<p>Approved Haul Roads:</p> <p>Haul roads serve as links between the various mine opencast pits, the two ore crushing facilities (at Bruce and King respectively), as well as the topsoil storage areas and discard dumps.</p> <p>Overburden is transported via trucks on treated roads to the crushers, which are situated near the opencast operations.</p> <p>ROM is transported to the crushers via haul roads from where it is loaded onto conveyors.</p> <p>Various haul roads have been/ will be constructed to provide access from one opencast working area to the other.</p> <p>Two categories of haul roads are present:</p> <ul style="list-style-type: none"> ☛ Category 1 haul roads have a width of 38.0m and serve as main arterials between opencast pits and crushing facilities. ☛ Category 2 haul roads have a width of 31.0m without a central berm, and function as links from opencast pits to Category 1 haul roads.
Other Roads	<p>Approved Other Roads:</p> <p>Service roads have been constructed connecting the plant area to the Bruce and King/ Mokaning opencast operations.</p> <p>A link road between the Bruce operations and the Plant has also been approved, but not yet constructed.</p> <p>The service road from the plant to the Bruce opencast operations runs parallel to the conveyors in a north-easterly direction.</p>



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Infrastructure	Description
	<p>The service road from the plant area to the King/ Mokaning operations utilises the same road as the Bruce opencast operations for the first 1.5km, after which it crosses the N14 national road under a bridge in an easterly direction parallel to the conveyors connecting the King/ Mokaning opencast operations with the Plant.</p> <p>A surface road has been constructed between the Bruce and King/ Mokaning opencast operation, to serve as access between the two mining operations. This road is known as the A1 highway. The road runs on the eastern boundary of the farm King in an approximate northerly direction. The road crosses the N14 national road under a bridge.</p>
Conveyors	
Bruce Conveyor	<p>Approved Conveyor at Bruce:</p> <p>This single length conveyor PS 15/CV60 is 6.5km long. From the stockpile at Bruce, where the conveyor is loaded, it passes under a Transnet railway line (OREX line) and public road (N14) to surface on the southern side of these.</p> <p>The conveyor further crosses a bridge (400m wide) across the Gamagara River, travelling outside of the 1:100 flood line. The fourth crossing is under the Transnet Hotazel/ Port Elizabeth (PE) line. Before arriving at the load off point at Parson, the conveyor travels over two small flood plains where it is suspended on culverts, and under the Khumani export siding.</p>
King Conveyors	<p>Approved Conveyor at King:</p> <p>This conveyor route is made up of two conveyors. The first leg, PS25/CV60, which is 1km long, travels west from the stockpile where it is loaded. After 400m, the conveyor passes over the Mine Access road and Hotazel/ PE Transnet railway line.</p> <p>The conveyor further passes under the N14 highway to arrive at a transfer tower. The ore is then transferred to the second conveyor PS25/CV70 which is ~1,5km long. The conveyor passes under the export siding at the same point as the Bruce conveyor.</p>
Railway Lines and Associated Infrastructure	
The OREX Railway Line	<p>Existing OREX Railway Line:</p> <p>The OREX Railway Line is an existing railway line between Sishen Mine and the Saldanha Port (export market) which runs parallel to the R325.</p>
The Hotazel / Port Elizabeth Railway line	<p>Existing Hotazel/ PE Railway Line:</p> <p>The Hotazel/ PE Railway Line (local markets) traverses the farms Mokaning and King where after it runs west of the farm Bruce.</p>
Rapid Load-Out Facilities	<p>Approved Rapid Load-Out Facility:</p> <p>The layout of the siding is of a balloon shape with double track arrangement comprising two (2) balloons. The siding is electrified at 50kV in common with the Transnet Main Line (OREX Line), and the take-off from the Transnet line is fully signalled and controlled from Saldanha.</p> <p>One siding line initiates from the OREX line and splits to form two balloons (loop structures) in order to load the required product on the train wagons for export. The railway siding has been established to accommodate 342 wagons plus 6 locomotives. Wagons capable of transporting 100 tonnes (t) of product are used.</p>



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	<p>The layout basically allows for a 342-wagon train to enter the siding, one at a time, and proceed on to the balloon layout in an anti-clockwise direction. The train will proceed to one of the load-out stations. Uncoupling will take place and the rear part of the train with two (2) locomotives now leading will proceed to the load-out station. Loading will commence after the train has entered the load-out and the first wagon in each rake has been aligned and declared ready for loading. Three (3) rakes of 114 wagons each are loaded separately, connected and dispatched to the OREX line. Movement of rakes on the balloons is currently undertaken by diesel locomotives.</p> <p>The following design criteria has been adopted (track standards as per Transnet, i.e. 30t axle loads, 60kg/m rails):</p> <ul style="list-style-type: none"> ☛ 30t axle loads; ☛ 50kV AC overhead electrification; ☛ Multi aspect colour light signalling; and ☛ Maximum train length 342 wagons excluding locomotives.
<p>Hotazel/ Port Elizabeth Railway Line Diversion</p>	<p>Approved Hotazel/ PE Railway Line Diversion:</p> <p>The railway line linking Hotazel to Port Elizabeth passes through an area that has been earmarked for opencast pits on King. In order to mine these opencast pits, the railway line was diverted to the west.</p>
<p>Local Railway Line Siding</p>	<p>Approved Local Railway Line Siding:</p> <p>There are requirements for iron ore on the local market and financial feasibility studies carried out by Assmang indicated that it would be advantageous to sell material on the local market. A siding linked to the Hotazel/ PE line has been constructed.</p> <p>The local siding will be a single-track railway tying into with the Hotazel/ PE railway line south-east of the point at which the Hotazel/ PE line crosses the Sishen-Saldanha (OREX) Line. The local siding then crosses the following existing infrastructure:</p> <ol style="list-style-type: none"> 1. A Rail-over-Road bridge over the Dingleton regional road. 2. The 100-year flood line of the Gamagara River where drainage structures will be provided. 3. The 132kV Eskom power line - this line has been raised to accommodate the siding. 4. The three Assmang transmission lines - these lines have been raised to accommodate the siding. 5. The Bruce overland conveyor - a culvert has been placed over the conveyor. 6. The Sishen Saldanha (OREX) export railway line with a Rail-over-Rail bridge. 7. The Sedibeng Pipeline running parallel to the Dingleton provincial road - this has been protected with a culvert incorporated in the bridge design. <p>The local siding will join up with the second railway balloon running outside of the first balloon.</p>
Power Lines	
<p>Eskom Power Lines</p>	<p>Existing Eskom Power Lines:</p>



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	Existing Eskom power lines (132 kV) from the Sishen traction station are present to the north of the farm Parson and transect the farm Bruce. Another line traverses the farms Mokaning and King parallel to the Hotazel/ PE railway line.
Three New Power Lines (132kV)	<p>Approved New Power Lines:</p> <p>Three power lines (132kV) have been routed from an existing Eskom Substation near Sishen Mine. The power lines are routed to an Eskom yard, situated at the plant area on the farm Parson. From the Eskom yard, two 22kV lines are routed to the Bruce opencast operations and two 22kV lines are taken to the King/ Mokaning opencast operations. The balloons can be electrified at 50kV AC, in common with the Transnet OREX Line, and the take-off from the Transnet line is fully signalled and controlled from Saldanha. Power supply for traction on the siding is from the Transnet system.</p> <p>The structure-series Eskom used for pylons is the "Steel Monopole Raptor Friendly" series. The intermediate suspension structure can be self-supporting or guyed structures depending on the landowner and/ or environmental preferences.</p>
Additional Power Supply	<p>Approved Additional Power Supply:</p> <p>The electricity shortage in the country has necessitated the creation of additional power supplies on site. The mine intends to implement the use of additional diesel generators for this purpose. An additional 1.25MVA generator will be placed on Parson and an additional two (2) 800kVA generators have been placed at King, all of which are located within the existing plant areas on site (Bruce, Parson and King). These generators are located at the following coordinates:</p> <p>King Genset – X = +81,417.940, Y = +49,365.570 Parson Genset – X = +83,253.980, Y = +52,677.310</p>
Fuel and Lubricant Storage	
Temporary Fuel Storage	<p>Approved Temporary Fuel Storage:</p> <p>The temporary fuel storage facility consists of two (2) above ground temporary diesel storage facilities, each with a capacity of 61m³. Each tank is double banded (so-called "Transtanks") and have been equipped with drip free nozzles. The structures have been established on concrete slabs with humps on all sides. A sloped, fully banded area has been located between the two tanks in order to enable the collection and management of potential spillages from the tanks.</p>
Additional Diesel and Lubricant Storage	<p>Approved Additional Diesel and Lubricant Storage</p> <p>The operation of the diesel generators and the additional activities on site require the storage of additional fuel and oil. The mine has a storage capacity of 21 days. This translates to an additional 1 312m³ of diesel and 276m³ lubricants being stored on site at any time.</p> <p>All fuel is stored above-ground within designated and appropriately constructed hazardous material storage areas.</p>
Solid Waste Management Facilities	
Industrial and Domestic Waste Disposal Sites	<p>Approved Industrial and Waste Deposal Sites:</p> <p>Industrial waste is limited to oil, diesel and grease. This waste is sold in bulk back to the manufacturers and suppliers. Unwanted waste is disposed of by a contractor at an approved industrial waste site.</p>



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	Three central areas have been identified in which domestic waste is stored for collection by the Gamagara Local Municipality. The Gamagara Local Municipality disposes of the domestic waste at the local municipal waste disposal facility in the Kathu area.
Chemical Storage	<p>Approved Chemical Storage:</p> <p>The mine uses several petroleum products on the mine. These can be separated into two types of products, namely bulk storage products and packaged products and will be stored as follows:</p> <ul style="list-style-type: none"> ☛ Bulk storage comprises above-ground tanks in the vicinity of the workshops located at the Parson Plant and at the workshop areas at Bruce and King. The delivery area and storage areas are lined with a concrete sealed floor and are bunded to contain any spillage or leakage and prevent contamination of the underlying soils. Sumps have been provided to allow contaminated storm water and spillage to be pumped out and disposed of by the contractor. ☛ Packaged products are stored in areas lined with a concrete floor to prevent contamination of the underlying soils due to spillages. As the quantities of these products are small and the area roofed thus preventing rainwater dispersal, the area is not bunded. Spillages are treated with an absorbent type material and then disposed of as contaminated waste.
Contaminated Waste	<p>Approved Contaminated Waste Storage:</p> <p>Contaminated waste such as oily rags, oil filters etc. are deposited in sealed drums at designated areas in the vicinity of the workshops at the Beneficiation Plant and the two opencast operations. These drums are removed from the area, for disposal in an approved manner.</p>
Tyres	<p>Approved Tyre Waste Storage:</p> <p>Old tyres are removed from site by a contracted tyre company for recycling or disposal in an approved manner. The tyre storage area has not yet been registered as per the Tyre Regulations.</p>
Lubrication Oils	<p>Approved Lubrication Oil Waste Storage:</p> <p>Used lubrication oils are removed from site by the fuel and lubrication contractor, for recycling and re-use. This occurs in bulk from tanks designed for this purpose. The area surrounding the tanks containing the waste oil and the collection point is bunded.</p>
Office and Domestic Waste	<p>Approved Office and Domestic Waste:</p> <p>Office and domestic waste are collected and disposed of at the mine's waste site. Three collection points have been provided by the mine, one at the farm Parson, and one at each of the opencast operations.</p>
Domestic Waste Site on the farm Parson	<p>Approved Domestic Waste site in terms of the NEMA – on the farm Parson:</p> <p>The waste disposal site is located on the remainder of the farm Parson.</p> <p>Uncontaminated rubble is collected and transported by trucks via the existing road network at the mine and is transported to the waste disposal site. The waste is collected on a weekly basis. Offloading and compaction takes about 5-10 minutes, which implies that the waste is exposed to the atmosphere within an enclosed building for only a very short period during normal operational conditions.</p>



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Temporary Hazardous Waste Disposal Facility	<p>Approved Temporary Hazardous Waste Disposal Facility in terms of the NEMA:</p> <p>The facility consists of an area where all hazardous waste can temporarily be stored prior to removal and disposal at a licensed hazardous waste disposal site. The proposed temporary storage facility is located adjacent to the proposed general waste disposal site.</p>
Topsoil Stockpiles	
Topsoil Stockpiles	<p>Approved Topsoil Stockpiles:</p> <p>Due to the shallow soil cover at Khumani, all topsoil and subsoil have been/ will be stripped (minimum of 0.25m or until hard rock is reached) from the:</p> <ul style="list-style-type: none"> ☛ Opencast pits; ☛ Overburden and Low-grade ROM Stockpiles; ☛ Overburden dump; ☛ Paste Disposal Facility; ☛ Parson Plant; ☛ Discard stockpile; ☛ Export stockpile; and ☛ Haul roads. <p>Various topsoil stockpiles have been created (Total area: 106.110ha; Height: ranges from 1.5m to 5m; Volume: 4,378,000m³). An eighth area is reserved for topsoil north of the Rapid Load-Out Facility on Parson.</p> <p><u>Stockpiling of topsoil</u></p> <p>The height of the topsoil stockpiles ranges between 1.5m and 5m. All topsoil stockpiles higher than 1.5m will require erosion control measures (i.e. terraces).</p>
Overburden and Low-grade ROM Stockpiles	
Overburden and Low-grade ROM Stockpiles	<p>Approved Overburden and Low-grade ROM Stockpiles:</p> <ul style="list-style-type: none"> ☛ Bruce Low-Grade ROM Stockpile and associated expansion towards the north; ☛ King/ Mokaning Low-Grade ROM Stockpile and associated expansion towards the west; ☛ Parson Discard Dump and associated expansion towards the south. ☛ The waste rock and overburden from the KM_NTH opencast pit will be stockpiled as material for the Paste Disposal Facility walls. ☛ Low-Grade ROM Stockpile J on the farm King. ☛ Material with an approximated 50 percent iron content and high Al₂O₃ and K₂O will be stockpiled on the overburden and Low-grade ROM Stockpiles situated at the King/ Mokaning and Bruce opencast workings. These stockpiles will be utilised once the mine reaches the end of life should it be proven economically feasible to process and sell the product. The following is anticipated:



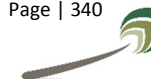
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	<ul style="list-style-type: none"> ○ Currently, it is planned that 1.3 percent (1.6 million tons) of the Bruce overburden and Low-grade ROM Stockpiles will be reworked. The remainder of the stockpile will remain as a rehabilitated overburden dump upon decommissioning. ○ Currently, it is planned that 4.9 percent (19.4 million tons) of the King/ Mokaning overburden and Low-grade ROM Stockpiles will be reworked. The remainder of the stockpile will remain as a rehabilitated overburden dump upon decommissioning.
Paste Disposal Facility	
Paste Disposal Facility	<p>Approved Paste Disposal Facility:</p> <p>All residue derived from the Parson Plant is thickened and disposed of at the approved Paste Disposal Facility. Khumani has developed a Paste Disposal Facility to ensure that no significant environmental impacts occur. The area of the Paste Disposal Facility is 168.4854ha.</p> <p>Water derived during the thickening process is returned to the Parson Plant to be reused.</p> <p>The Paste Disposal Facility has been constructed according to sound engineering and environmental principles.</p>
Borrow Pits	
Borrow Pits	<p>Approved Borrow Pits:</p> <p>There are large volumes of borrow material available for use as bulk and engineered fill materials as well as road and sub-ballast layer works. The hauling distances are expected to vary between 2km and 6km depending on the location of the borrow pit and the place where the material is needed.</p> <p>Materials were tested to determine the suitability for use: road pavement layers, upper and lower sub-ballast layers, gravel wearing coarse, semi-permeable material for the seepage cut-off and construction materials for paste disposal facility starter walls and storm water retention dams, and materials for engineered fills.</p> <p>The engineering properties of the materials were evaluated in terms of the Technical Recommendations for Highways: Standards for Road Construction Materials 1980 (TRH14).</p>
Mineral Processing	
Mineral Processing	<p>The Iron Ore Processing Facility has been designed to process ROM ores from the Bruce, King and Mokaning opencast pits. The first phase (phase 1) allows for 8 million dry metric tons product per annum, with the second phase (phase 2) ramping up to an approved 16 million dry metric tons product per annum.</p> <p>The Bruce and King mining areas are each equipped with processing units, consisting of a primary gyratory crusher, scalping screen and secondary cone crusher. ROM ore is reduced from a top size of one metre, to a crushed plant feed of less than 80mm.</p> <p>Following the primary and secondary crushing operations, the crushed ore is conveyed to the processing plant area, which is situated remotely from the mining areas, on the farm Parson.</p>



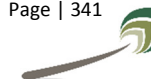
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	<p>On-grade and off-grade crushed ore is stockpiled separately with dedicated stackers and reclaimed to be fed separately to the dedicated on-grade and off-grade processing plants. On-grade ore requires only screening, while off-grade ore requires further beneficiation, to conform to the market requirements.</p> <p>On-grade ore requiring no beneficiation, i.e. ore conforming to the required chemical specifications is washed, crushed to -32mm in closed circuit, and sized into three market related products:</p> <ul style="list-style-type: none"> ☛ Lumpy export product; ☛ Medium Sized product for export and local markets; and ☛ Fines export product. <p>Off-grade ore (i.e. ore not conforming to the required chemical specifications) is washed, crushed to -32mm in closed circuit and screened into a coarse fraction and a fine fraction, prior to the beneficiation processes.</p> <p>Beneficiation is achieved by utilising jig technology. Jigs separate the ore according to the specific density of the particles. The separating units operate in such a way that particles within the off-grade ore with densities generally less than 4.9 will be rejected as discards, while particles with a specific density greater than 4.9, will be recovered as a product. The products from the beneficiation processes are screened into the three market related sizes as mentioned above.</p> <p>Reagents are not utilised in any of the beneficiation processes. A flocculating agent is required to assist in clarifying process water in the water reticulation circuit. This is achieved by utilising a conventional thickener. The clarified water is reticulated in the processing plants.</p> <p>A significant amount of water is recycled in the processing plant to reduce the magnitude of the clarifying requirement.</p> <p>Thickened pulp from the thickener units is pumped to a secondary thickener, situated away on farm King, to recover the remaining water from the thickened pulp. The secondary thickener produces a “paste”, which is deposited onto a “paste deposition facility”, designed specifically for this purpose.</p>
Mine Offices	<p>Approved Mine Offices:</p> <p>Mine offices have been established at the Bruce and King/ Mokaning opencast areas for managers, engineers and administration staff.</p> <p>The main administrative buildings are situated at the Plant (on Parson) and houses managers, engineers and administrative staff.</p> <p>A separate engineering block has been established at the Plant, which houses engineers, technical and administration staff employed in the operation of the process plant.</p> <p>A separate export office has been established at the load-out facility, which is equipped with tearoom and ablution facilities.</p>
Laboratory	<p>Approved Laboratory:</p> <p>A laboratory has been established at the Plant, which is utilised for the testing and certification of the product being processed and exported from the mine.</p>
Change House	<p>Approved Change House:</p> <p>Staff facilities for washing, ablutions and the safe keeping of personal belongings have been established at the Bruce and King/ Mokaning opencast areas as well as at the Plant. The change houses at the plant accommodates a medical centre at the main offices.</p>



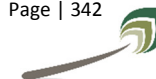
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	<p>A laundry facility has been established at the King Mine to provide a washing service to Bruce, King and Parson for the cleaning of overalls and other clothing issued to staff.</p> <p>Sewage plants have been established at the opencast and plant areas, to treat the sewage within the mine area.</p>
Clinic / Training Centre	<p>Approved Clinic / Training Centre:</p> <p>A medical centre and a training centre have been established at the Parson Plant.</p>
Security Building	<p>Approved Security Building:</p> <p>Security buildings have been established at the Bruce and King/ Mokaning opencast areas, as well as at the plant area.</p>
Plant Control Centre	<p>Approved Plant Control Centre:</p> <p>A Plant Control Centre has been established on the farm Parson for operators to monitor and control the Process Plant. The centre is equipped with offices, electronics, workshop, a tearoom and ablutions for staff associated with the centre.</p> <p>A Control Centre for the operation of the load-out and discard areas has been established on the farm Parson.</p>
Workshops / Stores / Substations	<p>Approved Workshop, Stores and Substations:</p> <p>The following infrastructure has been established:</p> <ul style="list-style-type: none"> ☛ Garage for the servicing and repair of mine vehicles at the Bruce and King/ Mokaning opencast areas; ☛ Stores on the Bruce and King/ Mokaning opencast areas, as well as the plant, for the daily requirements of the mine (i.e. spares); ☛ Workshops on the Bruce and King/ Mokaning opencast areas, as well as the plant, for the maintenance and repair of equipment used on the mine (i.e. crusher screens and conveyors etc.); ☛ Substations to house electrical equipment have been established at the Plant and the opencast operations; ☛ Sumps equipped with a submersible pumps and oils traps have established at the workshops where lubricants and chemicals are stored; and ☛ Vehicle cleaning facilities linked to oil/water separators have been established.
Mess Facility	<p>Approved Mess Facility:</p> <p>A mess area for train drivers and Transnet staff associated with the Rapid Load-Out Facility has been provided at the export facility.</p>
Weighbridge	<p>Approved Weighbridge:</p> <p>A weighbridge has been established at the plant area for verification regarding weight of loaded and unloaded vehicles etc.</p>
Explosives Magazine	<p>Approved Explosives Magazine:</p> <p>The explosives magazine has been built to Sasol Nitro design with the finished structures having been approved by Sasol Nitro.</p> <p>An exclusion zone of 800m radius within which there will be no buildings, other structures or public access is maintained.</p>



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Housing and Recreation	
Housing and Recreation	<p>Approved Housing and Recreation:</p> <p>Assmang is not directly involved in the provision of housing. Housing is included as an element within the remuneration package to allow the employees to provide their own housing. By undertaking this view, Assmang envisages their employees becoming self-sustaining.</p> <p>No permanent housing has been erected for employees on the site. The existing infrastructure and residential areas in and around Kathu, Postmasburg and Olifantshoek are utilised.</p>
Transport	
Transportation of Ore on Site	<p>Approved Transportation of Ore on Site:</p> <p>Haul trucks transport the blasted product to the crushers. Following the primary and secondary crushing operations, the crushed ore is stockpiled using stackers. Re-claimers are used to load the ore onto belt conveyors to transport the ore to the processing plant situated away from the mining areas, on the farm Parson. From the Plant, the final product is transported via conveyor to the product stockpiles, from where it is loaded into the Rapid Load-Out Facilities.</p>
Transport of Ore Off-site	<p>Approved Transportation of Ore Off-site:</p> <p>The final product is transported from the Rapid Loud-Out Facilities, via the OREX railway line to Saldanha (for export) and the Hotazel/ PE line (for local markets).</p>
Water Pollution and Storm Water Management Facilities	
Water Pollution and Storm Water Management Facilities - Legalities	<p>Storm water management infrastructure at Khumani does and will comply with the requirements of Government Notice Number 704 (GN 704), published in terms of the NWA.</p> <p>GN 704 requires the following:</p> <ul style="list-style-type: none"> ☛ All clean water systems must be designed and operated in such a manner that they are always capable of handling the 1:50 year flood event on top of their mean operation level without spilling; ☛ Any water arising from an area, which causes, has caused or is likely to cause pollution of a water resource, including polluted storm water, must be contained within a dirty water system. In order to reduce the volume of polluted water, contaminated areas should be minimised. While clean water should be diverted to natural watercourses, polluted water should be re-used wherever possible, thereby reducing the use of clean water; and ☛ Design, construct, maintain and operate any dam or tailings dam (in the Khumani situation, a Paste Disposal Facility) that forms part of a dirty water system to have a minimum freeboard of 0.8m above full supply level. <p>The following criteria have therefore been assumed for design purposes at Khumani:</p> <ul style="list-style-type: none"> ☛ 1:50 year, 24hr flood event; ☛ Average precipitation in the annual wettest month; ☛ Average operations water pumped to the Paste Disposal Facility; and



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	<ul style="list-style-type: none"> ☛ 0.8m freeboard (incl. freeboard for wave action) on the Paste Disposal Facility.
<p>Sewage Treatment Plants</p>	<p>Approved Sewage Treatment Plants:</p> <p>During construction, chemical toilets and mobile ablution blocks will be provided for the construction workers. These toilets will be cleaned as and when required. The waste material will be taken by a contractor to a suitable wastewater treatment facility.</p> <p>During the operational phase the three main areas of operation, i.e. the Parson Plant, Bruce opencast area and the King/ Mokaning opencast areas, will be supplied with sewage treatment plants designed to treat 120 to 140l of sewage per person per day. The Rapid Load-Out Facilities and the Explosives Magazine are equipped with smaller treatment facilities.</p> <p>At each site, underground piping carries the sewage to a central collection tank capable of buffering the loading from the sewage plant. This tank also acts as a combined settling tank and aerobatic digester.</p> <p>A secondary aerobic process comprising of a Bio Filter Rotating Biological Concentrator (RBC), fixed film reactor unit, followed by a humus settlement tank and disinfection tank completes the process.</p> <p>The discharges, following chlorination, from the sewage plants are:</p> <ul style="list-style-type: none"> ☛ Parson Plant (2.33m³/hr) – to the 5000m³ process water dam, forming part of the water employed in the plant process. ☛ Rapid Load-Out Facility (0.05m³/hr) – to the storm water dam where the returning water is pumped to the process water dam as described above. ☛ Explosives magazine (0.02m³/hr) – to the storm water dam where the water can evaporate. ☛ Bruce opencast operations (1.33m³/hr) – to the 300m³ mine water tank where the water will be used for mining activities. ☛ King/ Mokaning opencast operation (1.21m³/hr) – to the 300m³ mine water tank where the water will be used for mining activities. <p>Once a day, the filter elements are washed using clean water and once a week the units moving parts are inspected and greased.</p> <p>The settled sludge is emptied once a year or as necessary using an outside contractor such as Waste Tech. It is part of the contract for the contractor to safely dispose of the solid waste off-site.</p>
<p>Additional Sewerage Works</p>	<p>Approved Additional Sewerage Works:</p> <p>The expansion of capacity and operations on King required an increase in the number of staff on site. This growth in the workforce created the need for additional sewerage capacity. The peak workforce on King was 1800 during construction. This number has dropped to 600 for operations. The sewerage works was designed to handle the peak conditions at 1800 people.</p>
<p>Parson Plant Area and Surroundings - Water Pollution and Storm Water Management Facilities</p>	<p>Approved Water Pollution and Storm Water Management Facilities at Parson Plant Area and Surroundings</p> <p>Surrounding Area:</p> <p>All the storm water runoff from the upstream catchment of the plant area, ROM stockpile area and product stockpile area is diverted around the affected areas by means of berms and channels and has been sized for a 1:50 year flood event.</p> <p>The surface runoff from the areas is collected in Pollution Control Dams. All the PCDs are sized to contain the 1:50 year storm event, including a 0.8m freeboard. The PCDs are:</p>



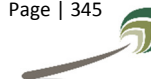
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Infrastructure	Description
	<ul style="list-style-type: none"> ☞ Plant Storm Water Dam; ☞ Load-Out Storm Water Dam; ☞ King Storm Water Dam; ☞ King Crusher Dam; and ☞ Bruce Storm Water Dam. <p>Inside Parson Plant:</p> <p>All plant sections, which process ore or form part of the processing facility, have been designed and laid out within proper sump areas, as contingency measures should spills occur. These have been constructed from concrete and are equipped with suitable vertical spindle centrifugal pumps, to allow for controlled evacuation of potential spillages.</p> <p>The design of the volumetric proportions of the bunds allow accommodation of the maximum volume of the tank or container, which might drain or overflow in that catchment.</p> <p>Sumps have been allowed for in the area of water treatment and clarification, and are similarly equipped with suitable sump pumps.</p> <p>Potential overflows from the thickener and process water tank are channelled to the dedicated storm water dam.</p>
<p>Opencast Area - Water Pollution and Storm Water Management Facilities</p>	<p>Approved Water Pollution and Storm Water Management Facilities at Opencast Area</p> <p>Diversion systems have been/ will be constructed upslope of the King and Bruce opencast areas in order to divert clean water away from the contaminated areas. Clean runoff from upstream of the opencast areas is/ will be diverted around the affected area by means of berms, sized to prevent spilling from a 1:50 year storm event. The diversion berms have been/ will be constructed with overburden material from the mining area.</p> <p>Groundwater seepage and direct rainfall water onto the opencast areas is pumped out by means of portable pumps. This water is used for dust suppression on the mine haul roads and operation water in the Process Plant.</p> <p>Water within the opencast pit areas is contained within the pit perimeter in low-lying areas. This water is pumped to various areas within the pit perimeter should it be required by the mining activities.</p>
<p>Primary and Secondary Crushers - Water Pollution and Storm Water Management Facilities</p>	<p>Approved Water Pollution and Storm Water Management Facilities at Primary and Secondary Crushers</p> <p>All the storm water runoff from the upstream catchment of the King crusher and Bruce crusher, is diverted around the areas by means of berms and channels which are sized for a 1:50 year storm event to designated pollution control dams.</p> <p>The sumps within the pollution control dams are lined to minimise seepage. All the pollution control dams are sized to contain the 1:50 year storm event including 0.8m freeboard. The pollution control dams are:</p> <ul style="list-style-type: none"> ☞ Plant Storm Water Dam; ☞ Load-Out Storm Water Dam; ☞ King Storm Water Dam; ☞ King Crusher Dam; and




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	<p> Bruce Storm Water Dam.</p> <p>Water collected is used for dust suppression at the primary and secondary crushers at the Bruce and King/ Mokaning opencast operations.</p> <p>Dry materials from the paddock is then removed to the Overburden and Low-grade ROM Stockpiles. Sumps have been constructed at the crushers to contain the water from the dust suppression system. The sumps have each been equipped with silt traps and a submersible pump. Sludge and mud are removed and disposed of on the nearest overburden dump and/ or Low-grade ROM Stockpile.</p>
<p>Stockpiles and dumps - Water Pollution and Storm Water Management Facilities</p>	<p>Approved Water Pollution and Storm Water Management Facilities at Stockpiles and Dumps</p> <p>Diversion systems have been constructed upslope of the stockpiles and/ or dump areas in order to divert clean water away from the contaminated areas. Clean runoff from upstream of the opencast areas is diverted around the affected area by means of berms, sized for a 1:50 year storm event. The diversion berms have been constructed with overburden material from the mining area.</p>
<p>Paste Disposal Facility - Water Pollution and Storm Water Management Facilities</p>	<p>Approved Water Pollution and Storm Water Management Facilities at Paste Disposal Facility</p> <p>Under-Drainage and Seepage Control System:</p> <p>An under-drainage and seepage control system with downstream paddocks has been designed and implemented to assist in lowering the phreatic surface in the starter wall, to maximise water return and to limit the release of potentially contaminated water into the downstream environment.</p> <p>A layer of sand underlies the Paste Disposal Facility. Supernatant water collects at the interface between the residue surface and the natural ground. In this area seepage into the underlying sand is likely to occur, as the sand will not be sufficiently blinded with residue. This seepage water will be confined to the sand layer and will flow down-gradient towards the downstream environment. To capture and control this flow, a combined under-drainage and cut-off system is required.</p> <p>Contaminated Runoff Control:</p> <p>Any storm water runoff from the downstream embankment slopes will contain some eroded residue solids. In order to prevent the eroded residue solids from discharging into the surrounding environment, catchment paddocks are provided downstream of the embankment toe. The paddocks are sized to contain the peak runoff from the outer embankment expected from the 1:50 year recurrence interval storm and allow for sedimentation of any eroded solids and evaporation of storm runoff.</p> <p>The catchment paddocks require periodic cleaning of deposited sediment. This should form part of normal operation and maintenance.</p> <p>Due to the site being positioned in a valley, storm water diversion forms a significant consideration in terms of the overall design.</p> <p>The external catchment draining towards the Paste Disposal Facility has an area of 171ha. The catchment is largely positioned to the east of the site. In order to divert the flows from each portion of the catchment, cut-off trenches and diversion bunds are required.</p> <p>The sand is highly permeable and therefore any water entering the sand will drain rapidly. The deposition method results in the blinding of the surface of this sand layer with the residue material. This serves to reduce seepage from the basin once it has been covered by residue.</p> <p>Containment:</p>



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	<p>A containment dam has been constructed to contain all precipitation. Supernatant water (above the paste in the Paste Disposal Facility) is pumped into the return water system when required, and is returned to the plant for reuse.</p> <p>The slurry delivery system to the Paste Disposal Facility has been designed to allow containment of potential spills at any location along the route for the full volume of the pipeline contents. A pipeline break will therefore result in the controlled spill of slurry into a spill collection ditch that discharges into an emergency paddock, where the slurry will be contained for subsequent removal, to prevent release into the environment.</p>
<p>Linear infrastructure - Water Pollution and Storm Water Management Facilities</p>	<p>Approved Storm Water Management Facilities for Linear Infrastructure</p> <ul style="list-style-type: none"> ☛ Haul roads are constructed to allow storm water to run over low points. ☛ Storm water can run off the access roads towards low points. ☛ Culverts have been constructed where conveyors and roads cross the 1:100-year flood lines. The culverts have been constructed such as to allow through-flow of 1:100-year floods and debris. ☛ The following have reference to the Rail Siding: <ul style="list-style-type: none"> ○ Culverts are located at the lowest points along the long section; and ○ Long sections are used to determine the acceptable sizes of culverts so that the depth of the culvert does not exceed the depth available under the railway line.
<p>Workshops - Water Pollution and Storm Water Management Facilities</p>	<p>Approved Water Pollution and Storm Water Management Facilities for Workshops</p> <p>Maintenance workshops have been provided as part of the infrastructure in the vicinity of the Parson Plant, and Bruce and King/ Mokaning opencast operations. Oil/ water separators have been installed on each of the water discharges of the three workshops.</p> <p>The separators have three compartments. The first compartment collects sand, grit and stones and is emptied and cleaned once a year or when necessary. The material is disposed of with the waste being deposited in the oil contaminated waste skip for disposal.</p> <p>Retained oils and grease in the second compartment are emptied once a year and discharged off-site in line with the Mine's contract for the disposal of such material. Water from the separator is collected in the third compartment before being pumped to the process water dam at Parson and the mine water tank at the Bruce and King/ Mokaning operations, depending on where the workshop is located.</p>
<p>Laboratory Acid Treatment Plant</p>	<p>Approved Water Pollution and Storm Water Management Facilities for Laboratory Acid Treatment Plant</p> <p>Weak diluted acids are used in the laboratory at the Parson Plant. These solutions are discharged from sinks in the laboratory. Prior to the discharge of these solutions into the sewerage system, they are treated in an acid neutralising treatment plant to a neutral pH.</p>
<p>Potable Water Supply</p>	
<p>Potable Water Supply</p>	<p>Approved Potable Water Supply</p> <p>With the start of the Sishen iron ore mining operation, the Vaal-Gamagara Water Scheme was built with one of the main purposes being to supply water from the Vaal River to the Sishen mining operations. The magnitude of the dewatering requirements at Sishen necessary to create dry mining conditions was not</p>



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Infrastructure	Description						
	<p>foreseen at the time of the construction of the Vaal-Gamagara pipeline. In recent years, the dewatering programs at both Sishen and further south at Assmang's Beeshoek Mine near Postmasburg have started pumping more and more water into the pipeline.</p> <p>Although Sishen currently discharges excess water into the pipeline, water demand from the pipeline is also on the increase.</p>						
	<p>Water is contracted to be supplied at a rate of 800m³/hr from an abstraction point on the existing Sedibeng Water Pipeline to a point on the farm Parson.</p> <p>Coordinates of the Sedibeng Pipeline Abstraction Point on the farm Parson:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #cccccc;">Reference</th> <th style="background-color: #cccccc;">X Coordinate South</th> <th style="background-color: #cccccc;">Y-Coordinate North</th> </tr> </thead> <tbody> <tr> <td>Abstraction Point from the Sedibeng Pipeline</td> <td>27° 51' 48.2"S</td> <td>22° 58' 14.5"E</td> </tr> </tbody> </table> <p>Water supply is potable water, and is used to top up the 10 000m³ make-up Gamagara Tank, and for certain other uses. Water in the plant system is recycled where possible to minimise the potable water top-up demand.</p> <p>Khumani plans to utilise 4.5 million m³ per year, which may increase in the future.</p> <p>A 10 000m³ and two (2) other potable water dams have been established at the Parson Plant in which the water from the Sedibeng Pipeline is stored. From the potable water dam, the water is pumped to potable water tanks (150m³), which have been established at the Plant and the opencast areas to provide water for domestic, workshop and wash bay purposes.</p> <p>Dirty water from the pits, sewage facilities, workshops and wash bays are re-used in the plant process and/ or mining activities.</p> <p>Assmang's objective is to reduce the volume of water obtained by maintaining the re-use of water.</p>	Reference	X Coordinate South	Y-Coordinate North	Abstraction Point from the Sedibeng Pipeline	27° 51' 48.2"S	22° 58' 14.5"E
Reference	X Coordinate South	Y-Coordinate North					
Abstraction Point from the Sedibeng Pipeline	27° 51' 48.2"S	22° 58' 14.5"E					
Disturbance of Water Courses							
Disturbance of Water Courses	<p>Two (2) river diversions have been approved for Khumani:</p> <ul style="list-style-type: none"> ☛ Drainage channel diversion associated with the King/ Mokaning Low-Grade Stockpile; and ☛ Diversion of the non-perennial drainage channel around the King West opencast mining area. 						



5.2 General Observations

5.2.1 Waste Disposal and Licensing

A Waste Management Procedure is in place on site.

Waste containments are labelled on site.

At the time of the site investigation, the Mine was in the process of changing waste management suppliers to Interwaste, which provided a constraint in waste management with various overfull bins and containments present. During the last day of the audit, Interwaste was on site, and clean up has commenced.

In terms of the implementation of waste management procedures the following observations were made relating to waste management:

- ☞ At the King Laydown area, littering is present. Dustbins are provided but not in use.
- ☞ At the King Workshop (Drilling and Ancillary), hazardous waste skips indicate mixing. The hazardous skips on site are not covered which impacts the capacity during rain events, when not sufficiently banded.
- ☞ At the King Workshop (Drilling and Ancillary), waste skips are overfull due to a constraint getting the new waste management service providers on site – Interwaste will be taking over this task. It is important to note that during the first and second day of the audit, various issues were observed in terms of waste management. On the third day Interwaste was on site and removal of skips were observed.
- ☞ At the King Loading Equipment Workshop, hazardous skips are present, but not contained on banded or concreted areas and with no roof or covering present.
- ☞ At the King Bulk diesel storage area, hydrocarbons are present around the hazardous waste skip indicating leakage; this skip is also not covered or contained.
- ☞ At the Bruce Salvage Yard, the hydrocarbon and battery storage area is located on a surfaced area but not banded. Hazardous bins are placed on unlined areas. Some drums are stored outside of banded areas.
- ☞ At the Bruce Diesel Bay parking area littering is present. Hazardous skips at the parking area have waste mixing present, are not in a contained area and have no lid present.
- ☞ At the Bruce Bulk Diesel Storage area, the hazardous waste skip at the bulk storage area is not contained – seepage takes place through the link between the surface and brick structure.
- ☞ At the Workshop (Boiler Maker), Castrol drums are stored in uncontained areas; these are full. In this area there is a large presence of grease and oils spills.
- ☞ At the TMM Workshop at Bruce, hazardous skips are present with no lids.
- ☞ At the Transnet Workshop, the hazardous waste bin is filled with domestic waste.
- ☞ At the Parson Plant area, three very full skips are present at the recycling station and the hazardous skip indicates waste mixing.
- ☞ Towards the HOD Offices, some fly waste (litter) was present as no covering was undertaken due to the supplier constraints.
- ☞ At the Salvage Yard Parson, various findings were observed during the site inspection due to a constraint experienced to get the service suppliers (Interwaste) on site. These included:
 - Fluorescent tubes not stored in boxes in access-controlled areas. The tubes were present in drums, unmanaged and placed at the entrance where vehicles travel.
 - Domestic waste was dumped in a skip during the time the temporary WMCO (Mr. Rooibaatjie) was away and resulted in fly litter.
 - Storage in the storage area was haphazard – a buyer started sorting the tyres to be removed but did not complete this activity at the time of the audit.
 - Drums to be refurbished have increased in number as there is no waste contractor on site. This has taken up a significant portion of the contained area resulting in some drums stored outside of contained areas.



- Hazardous waste skips (RoRo bins) were overflowing as EnviroServe has not collected these (although appointed).

5.2.2 Disposal Lawfulness

Domestic waste is disposed of at a Licensed Landfill Site.

In terms of the validity of Licensed sites and safe disposal certificates:

- ☞ PPC Lime Acres, is a member of NORA-SA. This membership was valid until 31 August 2019, no later documentation was present during the site audit.
- ☞ PPC Lime Acres has an AEL in place (Ref 23/4/2/58) allowing the facility to use used oil as a partial replacement for coal.
- ☞ Olegra is also a member of NORA-SA with a membership that was valid until 31 August 2019.
- ☞ Transportation of dangerous goods registrations are available for the vehicles used by Olegra. These are valid until 19 June 2020.
- ☞ Oily rags and greases were removed by EnviroServ; the registration certificate as a hazardous waste transporter available in the file expired in July 2019. The Mine has however replaced this contract with the services of Interwaste.
- ☞ M-SHEX, a recycling company based in Kathu previously undertook recycling for the Mine. Due to operational issues no recycling activities have taken place since February 2019. (Last records were received in February 2019). No WMLs or registrations are available for M-SHEX.
- ☞ Bidvest Steiner removes the She bins from site; these are taken to Kuruman where after it is removed by Compass for safe disposal. (No safe disposal certificates are in place for Bidvest Steiner or Compass on site and no latest records are available on site).

Safe disposal certificates are available for PPC Lime Acres. This includes the manifest which indicates the volumes removed and the percentage water. Should the percentage water be too high, the end user is required to dispose of it at an alternative site as the oil cannot be separated for use.

The manifests for the removal of water from the site by EnviroServ are available. The safe disposal certificate from Holfontein is obtained from the facility.

5.2.3 Hydrocarbon Management

The following were observed during the spot checks on site

- ☞ At the King Refuelling Bay, oil spills are present outside of the bunded areas and a fuel spill is present at the pump area in the fourth sump which is not contained. In addition to this, the sump between the area 1 and 2 filling pump indicates overflow.
- ☞ At the Loading Equipment Workshop, diesel drums are stored outside of bunded areas. Hazardous skips are present, but not contained on a bunded or concreted area and with no roof or covering.
- ☞ At the Bulk Diesel Storage area at King, hydrocarbons are present around the hazardous waste skip indicating a leaking skip; this skip is also not covered or contained.
- ☞ At the King Salvage area, diesel drums are stored on a surfaced area which is however not contained with no bund present.
- ☞ At the Bruce Salvage Yard, the hydrocarbon and battery storage area are located on a surfaced area but not bunded. Hazardous bins are placed on an unlined area.
- ☞ At the Bruce Bulk Diesel Bay, hazardous skips present at the parking area have waste mixing present and are not in a contained area and no lids are present. The hazardous waste skip at the bulk storage area is not contained – seepage takes place through the link between the surface and brick structure. The oil separator indicates spills on the brick paving. During the summer, the oil separator pumps sometimes fail and overflow – proof of this was visually present on site. This was reported to the Mine to fix based on the on-site inspections.



- ☞ At the Bruce Workshop, spills are currently present around the contaminated soil buckets. Castrol drums are stored in uncontained areas; these are full. In this area there is a large presence of grease and oils spills.
- ☞ At the Load-Out Transnet Workshop, some spills around the Drizit system are not contained.

5.3 Level of Compliance

The compliance score achieved in terms of the NEMA/ECA and MPRDA compliance is summarised as follows:

Table 20: Compliance Scores

Licence Reference	Date	2019 Compliance (%)
Original EMP: IV.04.05.044	February 2006	85
Original ROD: NC 30/5/1/2/3/2/1/070EM	25 January 2007	90
Original Environmental Authorisation: Pert 43/2009	12 June 2006	68
Barrier Pillar EMP: IV.ARM.07.005	April 2007	100
Barrier Pillar: NC 30/5/1/2/3/2/1/070EM	Undated, signed off by M.J Mndaweni	87
Railway Line EMP: : 00049/000/000/08-343	April 2009	87
Railway Line ROD: NC 30/5/1/2/3/2/1/070EM	17 February 2009	86
Railway Line: Permit 47/2009	29 July 2009	81
Expansion EMP: NC 30/5/1/2/3/2/1/070EM	17 February 2011	67
Expansion EMP: NC 30/5/1/2/3/2/1/070EM	14 May 2012	No conditions to audit, only EMP
Expansion WRD Environmental Authorisation: Permit 37/2012	23 July 2012	97
EMP, 13-843	January 2016	81
Expansion WRD Environmental Authorisation Permit, Permit 21/2016	27 June 2016	74
New Plant and Silo Relocation EMP: 21707	19 July 2017	94
New Plant and Silo Relocation: NC 30/5/1/2/3/2/1/070EM	27 July 2018	93

5.4 Effectiveness of the EMPr and New Impacts and Risks

The studies below, provides and indication of the effectiveness of the implementation of recommendations on site.

5.4.1 Mine Residue Deposit Legal Risk

The transitional arrangements of the NEMA Regulations for the Planning and Management of Residue Deposits and Residue Stockpiles are very important. Under the transitional arrangements it is stated that an EMP approved in terms of the MPRDA shall be deemed to have been approved and issued in terms of the NEMWA. The Minister may however direct any holder of a mining right if he or she is of the opinion that the residue stockpile or residue deposit in question is likely to result in significant pollution, degradation or damage to the environment, to take such action to upgrade the EMP to address any deficiency in the EMP. A further very important component of the transitional arrangements is the fact that under Section 6 it is stated that an EMP submitted in terms of the MPRDA and which is pending when this Notice takes effect (8 December 2014), must despite the repeal of the MPRDA be dispensed with in terms of the MPRDA. The aforementioned statement will then again give effect to the transitional arrangements stating that an EMP approved in terms of the MPRDA shall be deemed to have been approved and issued in terms of the NEMWA.

5.4.2 Rehabilitation Material Availability

Topsoil stockpiles are present on site. Based on the current layout and engineering investigation sufficient topsoil is available on site.



5.4.3 Waste Classification Outcomes

As part of Assmang's commitment to comply with the national environmental legislation and to follow a proactive and responsible approach in the undertaking of the mining operations, the importance of the changes in the Regulatory System in terms of the governance, management and licensing of Mine Residue has been raised as an urgent matter to be investigated and the legal requirements and potential liabilities be understood and planned towards.

Waste Classification and Waste Type Assessments were undertaken during 2015 and 2016, with the finalisation of the report in June 2016. The outcomes of the report are summarised below:

5.4.3.1 Waste Type Assessment

The material from all the different sites is classified as Type 3 Waste following the GN R635 classification system.

This classification is mostly based on the results of the Total Concentration (TC) testing results where there are elements that exceed the TCTO guidelines for all the samples. The Bruce Low-Grade ROM Stockpile may not be impacted when taking into consideration dilution with natural groundwater based on the Leach Concentration (LC) results.

Following the GN R636 guideline, the material from all the facilities may only be disposed of at a Class C Landfill designed in accordance with Section 1(1) and (2) of the GN R636 Norms and Standards, or, subject to Section 3(4), it may be disposed of at a landfill site designed in accordance with the requirements for a GLB+ landfill as specified in the Minimum Requirements for Waste Disposal by Landfill.

5.4.3.2 Environmental Impact

The groundwater in the Khumani area is naturally high in Nitrate (NO_3) with concentrations ranging between 30mg/L and 81mg/L in most of the monitoring boreholes.

The Sulphate (SO_4) concentrations in monitoring boreholes BK12 and BK17 measured at 300 and 279mg/L respectively. These values exceed the LCTO guideline value of 250mg/L.

Manganese (Mn) and Zinc (Zn) form part of the four (4) main elements to be considered when assessing the impact of leachate from the surface facilities towards the aquifers. The measured concentrations from all the samples comply with the LCTO guideline values. The Mn concentrations are mostly in the order of 0.001 to 0.006mg/L with BK36 showing a concentration of 0.11mg/L. Zn concentrations are consistently below detection limit (<0.005mg/L).

Natural Barium (Ba) concentrations in the area fall below detection limit (<0.001mg/L). The borehole at the paste disposal area shows an elevated barium concentration which can be attributable to the nearby Paste Disposal Facility. The Ba concentration in this borehole is measured at 0.835mg/L, which is one order of magnitude less than the source concentration at the paste disposal facility. This indicates the influence of dilution of the source fluids with uncontaminated natural groundwater.

Based on the available groundwater quality data and the leach test results, little impact is expected on the groundwater quality in the underlying and surrounding aquifers, except:

- ☞ All facilities have the potential to increase the Aluminium (Al) and Sodium (Na) concentrations due to seepage into the underlying aquifers. The resultant water will still comply with LCTO guideline values;
- ☞ All facilities, except the BC11 facility, can be expected to have an impact on the Ba concentrations in the groundwater. The Ba concentrations are expected to increase up to 1.7 to 2.3mg/L over time as the plumes develop and ultimately the barium concentrations will exceed the LCTO guidelines;
- ☞ At the King WRD Potassium (K) concentrations could increase. There are no LCTO guideline values to compare it against;



- The King Paste Disposal Facility could pose some risk of increasing the Mn concentration in the underlying aquifers up to 1.7mg/L. This value exceeds the LCT0 guideline value;
- The Bruce BC11 and King WRD facilities could cause an increase in the Zn concentrations in the underlying aquifers. At the King WRD facility, the leachate could exceed the LCT0 guideline value slightly (0.085mg/l vs 0.07mg/L). At the Bruce BC11 facility, the impact could be more prominent, with concentrations increasing to 0.175mg/L (a factor of 2.5).

5.4.3.3 SANS 10234 Classification

The outcomes of the SANS 10234 study concluded that:

- The material is classified as non-hazardous in terms of physical hazards.
- The material is classified as follows for the health hazards:
 - Both mixtures are classified as Category 1 (the highest toxicity category) for acute health effects;
 - Both mixtures are classified as hazardous in terms of skin corrosion or irritation;
 - Both mixtures are classified as Category 1 for being hazardous to the eye;
 - Both the waste rock and slimes or paste material “mixtures” can be classified as hazardous in terms of respiratory and skin sensitisation hazards; and
 - Although Category 1 carcinogens are present, none of the mixtures contain known carcinogens at concentrations ranging from 0.1% and above. Therefore, none of the mixtures are classified as being carcinogenic.

In terms of the health hazards and considering Total Concentrations, it must be considered that the solid rock material on the WRDs will not pose a direct health hazard through oral ingestion, dermatological processes, or respiratory processes. Rather, it is the element concentrations from leachate emanating from the surface stockpiles following rainfall recharge onto WRDs, or wet deposition on slimes dams, that will be representative of the water quality that has the potential to eventually reach, and impact, the neighbouring groundwater or surface water users. Therefore, the leachable concentrations must be considered when the SANS 10234 classification is made.

Comparing the Leach Concentrations obtained from leach testing of the rock material to the SANS 10234 generic guidelines of 1.0% or 0.1% concentrations summarised in waste classification none of the elements exceed the SANS 10234 guideline limits of 1% and 0.1% concentrations.

Based on the leach test concentrations the material can be classified as being non-hazardous for health impacts.

- Laboratory testing shows that the material is non-hazardous to the aquatic environment from both an acute and a chronic toxicity point of view.

5.4.3.4 Legalities

No WMLs are required for any of the facilities. An EMP Amendment for the extension to the Parson Low-Grade Stockpile (previously known as the Parson Discard Dump) with associated reworking, the King/ Mokaning Low-Grade ROM Stockpile, and the Bruce Low-Grade ROM Stockpile, as well as the establishment of some additional stockpiles on King was approved by the DMR in 2016. This EMP was submitted on 14 December 2014, ensuring that these applications are considered as lawful and not subjected to the new waste management legislation.

5.4.4 EMP Specific Risk Identification

The compilation of the various EMPs were undertaken using a quantitative risk assessment approach. None of the EMPs undertaken have identified any long term or residual risks for consideration in the Closure Plans.

It is recommended that the mine reassesses its risks once the current groundwater model has been completed due to a possible change in water sources – i.e. initiation of water abstraction.



5.4.5 Groundwater Risk

A hydrogeological assessment was undertaken by Golder (dated January 2019) in order to identify and quantify the impacts associated with the proposed expansion of infrastructure at Khumani Iron Ore Mine (specifically relating to the 2016 Environmental Authorisation for the expansions to the Mine Residue Deposits on site).

Khumani Mine has a projected life of mine to 2039. Iron ore is mined via a series of opencast pits situated on the farms Bruce and King. WRDs as well as offices and stockpiles are located on the farms Parson and Mokaning. The proposed infrastructure expansions include the following activities;

- ☞ The expansion of the Bruce Overburden Dump;
- ☞ The development of the Overburden Dump (Dump H) on King and Mokaning;
- ☞ The development of the WRD J on King; and
- ☞ Expansion of the stockpile and associated infrastructure on Parson.

The key findings of the study are outlined in the sections below.

5.4.5.1 Groundwater Inflows & Drawdown Impacts

- ☞ The Bruce Opencast Pits are expected to reach a maximum mining elevation of 940 meters above mean sea level (mamsl; 270 metres below ground level) at BA12 in 2039. Groundwater inflows to these pits are expected to begin in 2034. Based on the calibrated aquifer parameters, the inflows are expected to gradually increase to approximately 74L/s (6 400m³/d) by 2039.
- ☞ The King Opencast Pits are similarly projected to be mined up until 2039 and KM15, the deepest of the King pits, is projected to reach a maximum mining elevation of 930mamsl or approximately 280m below the pre-mining surface.
- ☞ Inflows at King Opencast Pits are expected to begin in 2024 and gradually increase over time to a peak groundwater inflow rate in the order of 114L/s.
- ☞ The maximum cumulative inflows to the pits over the life of mine are expected to be in the order of 190L/s. This will be required to be abstracted from the open pits to ensure safe mining conditions.

These predictions are based on the calibrated numerical model developed for the evaluation of mine dewatering impacts on the catchment. The aquifer parameters (conductivity and storage) are based on calibration of the model against transient water levels collected at Khumani and aquifer parameters derived from testing in the broader catchment area. No aquifer tests have been conducted within the opencast pits.

- ☞ Khumani is located within a groundwater compartment which is bound by regionally extensive dolerite dykes. Water levels within the compartment are significantly impacted because of Sishen Iron Ore Mine dewatering which has been active within the compartment since 1976.
- ☞ Extensive investigations have found that there is limited drawdown in water levels beyond the dyke boundaries which are inferred to delineate the groundwater compartment. Based on the calibrated model developed for the catchment, it was demonstrated that the dewatering which will be required from the Khumani opencast pits results in negligible additional impacts to receptors beyond the groundwater compartment in which the Mine operates.

5.4.5.2 Infrastructure Expansion

- ☞ Mass transport simulations were run in order to evaluate the existing impact associated with Khumani mine infrastructure and the additional impacts that could be expected with the expansion of the infrastructure on Bruce, King and Parson.
- ☞ Leach tests and water quality analysis associated with the Paste Disposal Facility was undertaken in 2014 by GPT. The analyses demonstrated that the seepage from the Paste Disposal Facility is not expected to adversely affect water quality in the underlying aquifers. Based on the constituents analysed, it is not expected that groundwater quality concentration beneath the Paste Disposal Facility and other Khumani mine infrastructure will not exceed SANS 241:2015 drinking water quality standards.



- ☞ A mass transport simulation was however undertaken in order to evaluate the pathway of seepage from existing and proposed infrastructure. It was demonstrated that the mass plumes associated with licensed infrastructure is not expected to impact receptors proximal to Khumani during the life of mine. Similarly, it was shown that the additional infrastructure will not result in impacts on surrounding receptors during the operational phase.

5.4.5.3 Post-closure Impacts

The water levels within the compartment containing the Khumani and Sishen Iron Ore Mines have been significantly impacted because of dewatering since 1976. Complete recovery of water levels in the compartment will take over 300 years.

Particle tracking associated with mine infrastructure was used to demonstrate the pathways and receptors that could potentially become impacted from seepage in the post-operational phase. It was shown that after 300 years of recovery, no existing water users beyond the Khumani mine property are expected to be impacted by seepage from the Khumani mine infrastructure.

5.4.6 Presence of long-term Risks

Based on the current specialist studies and EMPs, no residual impact, which cannot be managed as part of the approved rehabilitation processes, has been identified. For this reason, no alternatives are required in terms of management measures to mitigate residual risks.

The main consideration is, however, the ongoing understanding of groundwater management, and for this reason numerical models must be updated continually to understand whether there is a change in the relationship between the surface activities and the groundwater chemistry.

This should be undertaken at least every second year to assess groundwater movement and potential changes in the risk scenario.

5.5 Need to Amend in terms of Regulation 34

Regulation 35(1) of the 2014 NEMA EIA Regulations states that the competent authority must consider the environmental audit report and amended EMPr, and where applicable the amended closure plan, contemplated in Regulation 34 and approve such amended EMPr, and where applicable the amended closure plan, if it is satisfied that it sufficiently provides for avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity, or where applicable the closure of the facility, and that it has been subjected to an appropriate public participation process.

It should be noted that in terms of Regulation 35(2), prior to approving an amended EMPr or closure plan contemplated in subregulation (1), the competent authority may request such amendments to the EMPr or closure plan as it deems appropriate to ensure that the EMPr sufficiently provides for avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity or to ensure that the closure plan sufficiently provides for avoidance, management and mitigation of environmental impacts associated with the closure of the facility.

These amendments in terms of Regulation 34 are required when management measures are not sufficient to address impacts encountered on site. Any other amendments must be dealt with in terms of Part 1 or Part 2 amendments in terms of the 2014 NEMA EIA Regulations (as amended).

The following table presents the conditions and/or EMP commitments, which are requested for amendment by the Competent Authority (DMR) in terms of Regulation 34 and or Regulation 29 of the NEMA.

The table specifically presents each Condition, the reason for amendment, whether the amendment would result in any risk, as well as the recommended amendment suggestion.



Table 21: Regulation 34 Amendment Requirements

Licence Reference	Date	2019 Compliance (%)	Adequacy of mitigation and management measures provided	Condition requiring Amendment	New Risks Identified	Recommendations (Regulation 34 or Regulation 29 Amendment)
Original EMP: IV.04.05.044	February 2006	85	The EMP and associated conditions are adequate to address environmental risks on site. Certain conditions require amendment to allow for practical environmental management.	The opencast pit backfill volume estimates as per the proposed 2005 mine schedule will be followed.	The commitment to specific backfilling schedules and volumes are not practical within a dynamic mining environment and therefore such commitment will result in an unachievable measure.	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020. The condition should be amended to allow for the backfilling process to be undertaken in a dynamic mining operation and in line with the commitments made in the Financial Provision – Annual Rehabilitation Plan.
				Hazardous waste will be collected by Waste Tech and will be removed to a permitted hazardous waste disposal facility.	Specific supplier commitments will result in non-compliance in the event of changes in such supplier. The requirement of permitted and licensed facilities/suppliers are more relevant.	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. It is not practically possible to make a commitment in the EMP relating to a specific supplier. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020.
				The mine is planned in such a way as to remain outside of the 1:100-year flood line.	Various river crossings are in place and some facilities within 1:100 year floodline. Where activities are required in the flood lines, WUL approvals have been obtained. This condition cannot be met in terms of the manner in which this condition is stated.	The condition should be amended in terms of Regulation 29 Part 1 to state that "No mining activities are allowed within the 1:100 year flood line of a water resource, without the necessary approvals from the DWS and any other competent authority where applicable."
				Maintain re-vegetated areas by means of regular watering, weed controls and cattle-grazing exclusion until the vegetation has settled	The area is in a water scarce environment. Watering of vegetation is not practical and suitable for this setting.	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. It is not practically possible to make a commitment in the EMP relating to a specific supplier. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020.



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Licence Reference	Date	2019 Compliance (%)	Adequacy of mitigation and management measures provided	Condition requiring Amendment	New Risks Identified	Recommendations (Regulation 34 or Regulation 29 Amendment)
				Waste will be collected by the Gamagara Municipality and will be removed to the Kathu waste disposal site.	Specific supplier commitments will result in non-compliance in the event of changes in such supplier. The requirement of permitted and licensed facilities/suppliers are more relevant.	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. It is not practically possible to make a commitment in the EMP relating to this condition as subsequent EMPs have allowed for local disposal. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020.
				All haul roads will be treated with Dust-a-Side (measures aimed at binding the surface material),	Specific supplier commitments will result in non-compliance in the event of changes in such supplier. The requirement of permitted and licensed facilities/suppliers are more relevant.	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. It is not practically possible to make a commitment in the EMP relating to a specific supplier or product. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020.
				The walls of the discard stockpiles, topsoil piles, overburden dump, and paste disposal facility will be vegetated or covered up to 1 m from the top throughout the life of mine. The vegetation cover should be such to ensure at least 80% control efficiency for the walls. This should be an on-going process. As an alternative option (due to the dry nature of the region), waste rock could be used to form the side slopes of the paste disposal facility. This would result in the surface of this facility to be below the top of the side walls during operations which may result in a reduction in wind entrainment from the surfaces. In addition waste rock can also be used to cover the slopes of the large overburden dump and topsoil piles. This is based on the waste rock dump being the lowest source of wind-blown dust from all the sources included.	This condition is not practical with the operational phase and ongoing deposition taking place on the Mine Residue Deposits.	It is recommended that this condition be amended in line with Regulation 34 and based on updated Air Quality Studies and Design Drawings. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020.
				☞ The greater part of the site will have the capability of at least grazing land, where grazing land currently exists. The rehabilitated paste disposal facility	The commitment to specific backfilling schedules and volumes are not practical within a dynamic mining	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. This could be undertaken as part of an overall EMP Amendment which is scheduled during



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Project Ref: 21915

Version: Final

Licence Reference	Date	2019 Compliance (%)	Adequacy of mitigation and management measures provided	Condition requiring Amendment	New Risks Identified	Recommendations (Regulation 34 or Regulation 29 Amendment)
				<p>and the opencast voids will, however, not be used as grazing land due to the moderately steep side slopes where erosion could occur if grazed.</p> <p>☞ <u>Due to the economic implications associated with double handling – backfilling, the BKM Mine will aim to backfill as much material as possible during the operational phase (172 million tons). However, all the opencast pits will not be backfilled and voids will remain. According to the 2005 mine schedule 11 of the 19 opencast pits will be backfilled (Refer to Section 4, Table 4-11). The opencast pits will be rehabilitated in such a way to be safe upon closure. This will be undertaken by either:</u></p> <ul style="list-style-type: none"> ☞ Fencing or berm the area off; ☞ Establishing indigenous thorny vegetation; ☞ Establishing of clearly visible safety and warning signs. ☞ This area will revert to near pre-mining land at closure. 	environment and therefore such commitment will result in an unachievable measure.	early 2020. The condition should be amended to allow for the backfilling process to be undertaken in a dynamic mining operation and in line with the commitments made in the Financial Provision – Annual Rehabilitation Plan.
Original ROD: NC 30/5/1/2/3/2/1/070EM	25 January 2007	90	All conditions and recommendations are regarded as adequate for the purposes of the mining operation.	-	-	-
Original Environmental Authorisation: Permit 43/2009	12 June 2006	68	The EMP and associated conditions are adequate to address environmental risks on site. Certain conditions require amendment to allow for practical environmental management.	#9 The applicant must notify this Department in writing within 24 hours thereof if conditions of the authorisation are not complied with.	This condition is not practical to implement. There are various conditions which will not at all times be compliant in terms of specific operational measures, such as waste management and hydrocarbon management. It will not be practical to notify the DMR of such issues.	It is recommended that this condition be removed from the ROD/ Environmental Authorisation and rather be replaced with a condition stating: The Licence Holder must within 24 hours, notify the Competent Authority of the occurrence or detection of any incident on the site, incidental to the operation of the site, which has the potential to cause, or has caused legal non-compliance, pollution of the environment, health risks, nuisance conditions or water pollution.



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				Special Condition #6: Contaminated soil must be removed for bioremediation or disposed of at licensed facility for the substance concerned and the disturbed land must be rehabilitated and seeded with vegetation naturally occurring on the site.	Allowance for self-succession should be made to ensure economic and environmental practices.	This is regarded as a Regulation 34 Amendment, which could be incorporated into the overall Environmental Authorisation Process scheduled for early 2020. It is recommended that this condition be amended as part of Regulation 34 to remove the immediate need for seeding and first allow for self-succession.
Barrier Pillar EMP: IV.ARM.07.005	April 2007	100	All conditions and recommendations are regarded as adequate for the purposes of the mining operation.	-	-	-
Barrier Pillar: NC 30/5/1/2/3/2/1/070EM	Undated, signed off by M.J Mndaweni	87	All conditions and recommendations are regarded as adequate for the purposes of the mining operation.	-	-	-
Railway Line EMP: : 00049/000/000/08-343	April 2009	87	The EMP and associated conditions are adequate to address environmental risks on site. Certain conditions require amendment to allow for practical environmental management.	During the operational phase the underlying strata will be removed. It will not be possible to return the opencast pits to original pre-mining conditions. The KIOM, however plans to undertake continuous backfilling throughout the mining operation in order to eliminate double handling. An amount of 172 million tons will be backfilled. Continuous backfilling will be included in operational procedures throughout the mining operation in order to eliminate double handling.	The commitment to specific backfilling schedules and volumes are not practical within a dynamic mining environment and therefore such commitment will result in an unachievable measure.	It is recommended that this condition be amended in line with Regulation 34 of the NEMA. This could be undertaken as part of an overall EMP Amendment which is scheduled during early 2020. The condition should be amended to allow for the backfilling process to be undertaken in a dynamic mining operation and in line with the commitments made in the Financial Provision – Annual Rehabilitation Plan.
Railway Line ROD: NC 30/5/1/2/3/2/1/070EM	17 February 2009	86	All conditions and recommendations are regarded as adequate for the purposes of the mining operation.	-	-	-
Railway Line: Permit 47/2009	29 July 2009	81	The EMP and associated conditions are adequate to address environmental risks on site. Certain conditions require amendment to allow	Condition #: In all other cases, the holder of the authorisation must notify the Department, in writing, within 7 days if a condition of this authorisation is not adhered to. Any notification in terms of this condition	This condition is not practical to implement. There are various conditions which will not at all times be compliant in terms of specific	It is recommended that this condition be removed from the ROD/ Environmental Authorisation and rather be replaced with a condition stating: The Licence Holder must within 24 hours, notify the Competent Authority



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			for practical environmental management.	must be accompanied by reasons for non-compliance.	operational measures, such as waste management and hydrocarbon management. It will not be practical to notify the DMR of such issues.	of the occurrence or detection of any incident on the Site, incidental to the operation of the site, which has the potential to cause, or has caused legal non-compliance, pollution of the environment, health risks, nuisance conditions or water pollution. This is regarded as a Regulation 34 Amendment, which could be incorporated into the overall Environmental Authorisation Process scheduled for early 2020.
Expansion EMP: NC 30/5/1/2/3/2/1/070EM	17 February 2011	67	The EMP and associated conditions are adequate to address environmental risks on site. Certain conditions require amendment to allow for practical environmental management.	<p>Management Measure: The storm water dams must be able to handle the 1:100-year flood events. No water will be released directly into the environmental from the dams. The storm water dams will be inspected on a weekly basis. The seasonally wet portions of the dams and the sump will be lined with concrete.</p> <p>Action Plan: The storm water dams will be monitored on a weekly basis. This will be included in the monitoring schedule. Surface water will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.</p> <p>Management Measure: The storm water dams must be able to handle the 1:100-year flood events. No water will be released directly into the environmental from the dams. The storm water dams will be inspected on a weekly basis. The seasonally wet portions of the dams and the sump will be lined with concrete.</p> <p>Action Plan : The storm water dams will be monitored on a weekly basis. This will be included in the monitoring schedule.</p>	<p>Storm Water Dams or the PCDs are monitored on a monthly basis and not a weekly basis as per the EMP. The approved WUL requires monthly monitoring of the facilities containing wastewater.</p> <p>During the site visit the following was observed in terms of findings relating to poor water management: * The intention of the Storm Water Dams is to be operated as empty - i.e. water circulation is to be implemented. Pumps are in place at the Bruce and Parson Storm Water Dams, but the reuse and circulation are not optimised and water volumes beyond the concrete sumps are present,</p>	<p>It is recommended that this condition be amended to allow the Mine to monitor surface and groundwater resources in line with the approved EMP. This will be a Regulation 29 Part 1 Amendment as it is a pure administrative amendment.</p> <p>It is recommended that this condition be amended to allow the Mine to monitor surface and groundwater resources in line with the approved EMP. This will be a Regulation 29 Part 1 Amendment as it is a pure administrative amendment.</p>



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				Groundwater will be monitored in accordance with the provisions outlined in Section 5.1 of the EMP.	and therefore such water is not contained and will seep into subsurface. Designs have been finalised to allow for improved water circulation and infrastructure in these areas to optimise water return. During the site visit large volumes of water were present in the Parson Plant PCD. No sump is present at the King PCDs. Groundwater is monitored in line with the WUL.	
Expansion EMP: NC 30/5/1/2/3/2/1/070EM	14 May 2012	No conditions to audit, only EMP		-	-	-
Expansion Environmental Authorisation: Permit WRD 37/2012	23 July 2012	97	The EMP and associated conditions are adequate to address environmental risks on site. Certain conditions require amendment to allow for practical environmental management.	Condition #4: No mining activities are allowed within the 1:100 year flood line of a water resource. Condition #8: The holder of the authorisation must notify the Department, in writing and within 24 (twenty four) hours, if condition 16 of this authorisation cannot be or is not adhered to. In all other cases, the holder of the authorisation must notify the Department, in writing within 7 (seven) days if a condition if this authorisation is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance.	Compliant in terms of approvals under the NWA. This condition is not practical to implement. There are various conditions which will not at all times be compliant in terms of specific operational measures such as waste management and hydrocarbon management. It will not be practical to notify the DMR of such issues.	The condition should be amended in terms of Regulation 29 Part 1 to state that "No mining activities are allowed within the 1:100 year flood line of a water resource, without the necessary approvals from the DWS and any other competent authority where applicable." It is recommended that this condition be removed from the ROD/ Environmental Authorisation and rather be replaced with a condition stating: The Licence Holder must within 24 hours, notify the Competent Authority of the occurrence or detection of any incident on the site, incidental to the operation of the site, which has the potential to cause, or has caused legal non-compliance, pollution of the environment, health risks, nuisance conditions or water pollution. This is regarded as a Regulation 34 Amendment, which could be incorporated into the overall Environmental Authorisation Process scheduled for early 2020.



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				Condition 32: In all other cases, the holder of the authorisation must notify the Department, in writing, within 7 days if a conditions of the authorisation is not adhered to. Any notification in terms of this condition must be accompanied by the reason for non-compliance.	This condition is not practical to implement. There are various conditions which will not at all times be compliant in terms of specific operational measures such as waste management and hydrocarbon management. It will not be practical to notify the DMR of such issues.	It is recommended that this condition be removed from the ROD/ Environmental Authorisation and rather be replaced with a condition stating: The Licence Holder must within 24 hours, notify the Competent Authority of the occurrence or detection of any incident on the site, incidental to the operation of the site, which has the potential to cause, or has caused legal non-compliance, pollution of the environment, health risks, nuisance conditions or water pollution. This is regarded as a Regulation 34 Amendment, which could be incorporated into the overall Environmental Authorisation Process scheduled for early 2020.
EMP, 13-843	January 2016	81		Re-establish vegetated areas in a timely manner through active planting and maintenance Minimise erosion Manage alien and invasive plant/weed establishment Consider active introduction of faunal species Adhere to Rehabilitation Plan Adhere to Revegetation Plan	Allowance for self-succession should be made to ensure economic and environmental practices.	It is recommended that this condition be amended as part of Regulation 34 to remove the immediate need for seeding and first allow for self-succession.
Expansion Environmental Authorisation Permit, WRD Permit, 21/2016	27 June 2016	74	All conditions and recommendations are regarded as adequate for the purposes of the mining operation.	-	-	-
New Plant and Silo Relocation EMP :21707	19 July 2017	94	All conditions and recommendations are regarded as adequate for the purposes of the mining operation.	-	-	-
New Plant and Silo Relocation: NC 30/5/1/2/3/2/1/070EM	27 July 2018	93	The EMP and associated conditions are adequate to address environmental risks on site. Certain conditions require amendment to allow for practical environmental management.	Condition #7: The holder of the EA must implement an Emergency Preparedness Plan and review it bi-annually when conducting audit and after each emergency and major incident. The holder must notify the competent authority in writing, within 24 hours thereof of the occurrence.	An Emergency Preparedness Plan is in place, however this is not updated bi-annually, but rather every third year.	It is recommended that this condition be amended as part of the Regulation 29 Part 1 Amendment Process to allow the updating of Code of Practice in line with the Mine's overall schedules.



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				<p>Condition 17: The holder of the authorisation must appoint an independent auditor to audit the site bi-annually. This auditor must compile an environmental audit report documenting the findings of the audit.</p> <p>The audit report must:</p> <ul style="list-style-type: none"> ☞ specifically state whether conditions of this environmental authorisation and EMP/closure plan are adhered to; ☞ identify and assess any new impacts and risks as a result of undertaking the activity/ies, if applicable; ☞ identify shortcomings in the EMP/closure plan, if applicable; ☞ identify the need, if any, for any changes to the management, avoidance and mitigation measures provided for in the EMP/closure plan; ☞ if applicable, specify that the corrective action/s taken for the previous audit's non-conformities, was adequate; and ☞ be submitted by the holder to the competent authority within 30 days from the date on which the auditor finalised the audit. ☞ Should any shortcomings in terms of Regulation 34(4) be identified, the holder of the authorisation must submit recommendation to amend the EMP plan in order to rectify any shortcomings identified with the aforementioned audit report. 	<p>To date no construction activities have commenced. The general schedule for audits in terms of the Environmental Authorisations on site is annually and not biannually.</p>	<p>It is recommended that this condition be amended as part of the Regulation 29 Part 1 Amendment Process to allow the auditing process to be scheduled in line with that of the approved Environmental Authorisations on site.</p>



5.6 Assumptions and Gaps

The following assumptions and gaps should be noted:

- ☞ The information provided by the Licence Holder was viewed as truthful and correct;
- ☞ Although the audit team assessed the site over a period of three days and covered as much terrain as possible, it should be noted that not all areas were visited due to time constraints. The auditor is however satisfied with the level of information obtained during the site visit and the ability to assess the licence as such; and
- ☞ No stakeholder consultation has been undertaken as part of this assessment. The mine has an open channel of communication with surrounding landowners and has been in continuous consultation processes with stakeholders as part of previous EMP amendment processes. During the past year no significant concerns have been raised by the stakeholders in terms of the mines impact on the surrounding area.

5.7 Stakeholder Consultation Process

As mentioned previously, in terms of Regulation 35(1) the competent authority must consider the environmental audit report and amended EMPr and, where applicable the amended closure plan, contemplated in Regulation 34 and approve such amended EMPr, and where applicable the amended closure plan, if it is satisfied that it sufficiently provides for avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity, or where applicable the closure of the facility, and that it has been subjected to an appropriate public participation process.

No amendments, which will impact on surrounding stakeholders or regulatory authorities, are required in terms of Regulation 34. For the purposes of this Environmental Audit undertaken, and due to the limited amendments required, it is recommended that the consultation process for the new Environmental Authorisation Process (Regulation 29 Part 2) which is planned to commence early 2020, and which will be undertaken in terms of the NEMA EIA Regulation, be a suitable vehicle to communicate the amendments (Regulation 29, Part 1 Amendments) required in the EMP. This will most likely be a full consultation process including:

- ☞ Meeting with the DMR and other Regulatory Authorities;
- ☞ Advert in a local and regional newspaper;
- ☞ Site Notice; and
- ☞ Stakeholder consultation meeting.

This notification can be undertaken together with the Regulation 34 Amendments as identified for the NEMA and MPRDA Environmental Authorisation and EMPr during the 2019 Environmental Performance audits.

It is the responsibility of the Licence Holder to ensure that the Environmental Audit Report is made available to stakeholders should stakeholders wish to review such a report.

5.8 Need to update the Licence

It is recommended that with the planned 2020 Environmental Authorisation Process that an overall consolidation of the EMPs be undertaken, including the associated Environmental Authorisations to allow for streamlining between the various conditions and commitments made as presented in Section 5.5.

5.9 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 audit;
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

