



## **environmental affairs**

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Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

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### **APPEAL RESPONSE REPORT**

**AMENDMENT OF THE EXEMPTION FROM LINING REQUIREMENTS ISSUED ON 19 OCTOBER 2015 FOR THE PROPOSED CONTINUOUS ASHING AT THE TUTUKA POWER STATION ASH DISPOSAL FACILITY, MPUMALANGA PROVINCE: DEA REF: 14/12/16/3/3/3/52/AM2.**

**PROJECT LOCATION: TUTUKA POWER STATION, MPUMALANGA PROVINCE.**

**PROJECT REFERENCE NUMBER : 14/12/16/3/3/3/52/AM2.**

**DATE PROJECT/ACTIVITY AUTHORISED : 24 MARCH 2020**

**DATE NOTIFIED OF DECISION : 24 MARCH 2020**

A handwritten signature in black ink, appearing to be 'JWS', written over a faint rectangular stamp.

**AMENDMENT OF THE EXEMPTION FROM LINING REQUIREMENTS ISSUED ON 19 OCTOBER 2015 FOR THE PROPOSED CONTINUOUS ASHING AT THE TUTUKA POWER STATION ASH DISPOSAL FACILITY, MPUMALANGA PROVINCE: DEA REF: 14/12/16/3/3/52/AM2.**

DETAILS OF THE APPELLANT	DETAILS OF THE APPLICANT
<b>Name of appellant:</b> Eskom Holdings SOC Ltd	<b>Name of applicant:</b> Eskom Holdings SOC Ltd
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GROUNDS OF APPEAL	COMMENTS BY THE DEPARTMENT
<p><b><u>Introduction and Summary:</u></b></p> <p>Eskom's Tutuka Power Station applied for, and obtained an Integrated Environmental Authorisation (IEA), dated 19 October 2015, for its Continuous Ash Disposal Facility (ADF). The station needed four (4) years to complete developmental and governance processes for installation of the Class C liner, while allowing station operations to continue. To address this need, in section 4.4.2 of the FEIR for the Continuous Ash Disposal Facility, Eskom applied for Transitional arrangements for a Class C barrier system on ash disposal, but this was not responded to by the Authorities in the IEA issued. An Exemption Application from installing a liner, for the 4-year period on a determined footprint of 54ha, was made to the Authorities. The section on "Scope of the exemption submission" of the Exemption Application (2015) explains that the 4-year duration is due "to consideration of project lead times within the internal and external governance processes". Section 4.4 of the Exemption Motivation Report provides the following timelines and milestones:</p> <ul style="list-style-type: none"><li>• "The ash disposal facility stability study and design should be completed by 28/02/2017.</li><li>• The scope of design work should be complete by 30/08/2017.</li><li>• The construction for the new ash disposal facility on the southern area should start at about 01/07/2019 after the tender process and the tender adjudication process; and</li><li>• The new ash disposal facility should be operational from December 2020".</li></ul> <p>Section 4 of the 2015 Exemption Motivation Report indicates that the footprint required for the 4-year exemption period can be calculated by understanding the width of the ashing facility, the height of the ashing face and the rate of ashing. Therefore, if any of these factors changed, it would affect the footprint of the required ashing area.</p> <p>The 4-year Exemption was granted on 05 May 2016. This Exemption allowed for ashing without the Class C liner over the area of approximately 54ha, over a period of 4 years. It is to be noted that the 54ha is located between the footprint of the station's ADF, as at 2016, and the future ADF that would be protected with a liner. See <b>Appendix A</b> for the map showing ADF progression. Therefore, the 54ha area assessed for Exemption forms part of the ash facility's continuous bed over which ashing infrastructure, e.g. conveyor belts, dust suppression pipelines, etc are installed. Towards meeting compliance with the IEA, Eskom continued with developmental process for the Class C liner, which would start at the end of the 54ha under the Exemption approval.</p> <p>The Exemption area was informed by the station's Generation Load Factor (GLF), which was estimated conservatively at 80% during the time of the Exemption Application. This conservative estimate was made to ensure that the application included a realistic footprint for deposition over the 4-year exemption period. The conservative estimate of 80% was assumed to include an appropriate Factor of Safety to the geometric modelling and growth plan. It was not realised at the time of application that should the GLF would drop, as it did over the last financial year to around 50%, and this reduction in ash production would result in the deposition not reaching the lining at the end of the 54ha over the 4-year period. However, in terms of developmental work for the Class C barrier system, the liner commences at the end of the 54ha authorised through the Exemption approval.</p> <p>The Exemption Application, and approval thereof, included surface water and groundwater impacts assessment reports that were undertaken to support the Exemption Application, as well as the ash classification results that formed part of the ADF's EIA process. Since acquisition of the Exemption approval, the GLF has been decreasing and did not reach 80% as estimated, but rather dropped to around 50%, as show in <b>Appendix B</b>. This reduction resulted in less ash tonnages being produced. With continually reducing GLF, and the resultant reduction in ash production, Tutuka Power Station realised that the 54ha assessed as an equivalent ground footprint for the 4-year Exemption, would not be fully utilised at the end of the 4-year exemption period, in 2018. An approximate extent of 11ha will remain unused at the end of the 4-year exemption period. A process to determine the most responsible option to manage this gap was undertaken, whereby three (3) alternative strategies were evaluated, as presented in the Exemption Amendment Application. These included:</p> <ul style="list-style-type: none"><li>• Retrofit the designs to include lining of the gap area.</li><li>• Leave the gap unused.</li><li>• Continue ash deposition on the gap area under exemption without a liner.</li></ul> <p>Through the assessment process a decision was made that the most feasible option was to <u>apply for an extension of the validity of the exemption period, without extending the area approved under the Exemption</u>. Therefore, through this option, the total area of exemption remains 54ha, and Tutuka would not require additional ashing capacity outside the total footprint authorised by the IEA. With the Exemption extension application only the timeframe for ashing without the Class C liner, in this same area, will need to be extended. <u>The Exemption Amendment is, thus, applicable to an area/a footprint that is already approved for unlined ashing.</u></p> <p>Due to the potential impacts being related to an area of ashing, which was estimated in relation to the time period of ashing without the liner, the amendment of the exemption to continue ashing on the</p>	

remaining 11ha was assessed through similar specialist studies as those undertaken during the Exemption Application process. The studies confirmed that the requested extension will have similar environmental and social impacts on local receptors as predicted within the Exemption Application.

**Ground 1: Failure to consider the principles of the National Environmental Management Act (NEMA), specifically principles 2.2, 2.3 and 2.4.**

**Authority decision, "This Department has consulted the Department of Water and Sanitation in order to obtain concurrence that is required in terms of Section 49(2) of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) regarding the proposed development. Based on a review of the application for amendment as indicated above and the supporting documentation to amend the Exemption issued, this Department has decided not to amend the exemption dated 05 May 2015".**

In responding to the above NEMA principles, Eskom applied for an Environmental Authorisation for the extension of the Ash Disposal Facility (ADF) at Tutuka Power Station, and an Integrated Environmental Authorisation (IEA) was granted on 19 October 2015 (DEA Ref: 14/12/16/3/3/3/52). This authorisation process, which was in line with the requirements of the National Environmental Management Waste Act (NEMWA) Waste Classification Management Systems (WCMS) classified ash as a Type 3 waste and recommended a Class C barrier system. The EIA process was supported by specialist studies focusing on groundwater and surface water of the receiving environment.

To install the required barrier system for the ADF extension, Eskom required time provision, which would allow all necessary developmental processes to be undertaken. It was anticipated that the planning and developmental processes, which would also ensure good quality project implementation, for installing the Class C liner, would take a period of approximately four (4) years, post-acquisition of the Integrated Environmental Authorisation (IEA). The duration required to get the lined surface ready for ashing would have resulted in challenges with achieving immediate compliance with respect to the lining, from acquisition of the IEA. Eskom, thus, applied for exemption for the said duration (up to 4 years) from the required Class C liner. The estimated footprint required for the 4-year exemption period was 54ha, and the identified area was assessed in the Exemption Application process. This footprint was informed by the station's generating capacity (referred to as Generation Load Factor, GLF of 80% conservative estimate at the time). The exemption for 4 years was approved on 5 May 2016.

The Exemption Amendment Motivation Report clearly provides that the developmental processes for the Class C liner (outside the 54ha area under the Exemption approval) continued in parallel with use of, and beyond the borders of, the area under exemption. At the time of the applying for amendment of the Exemption, these Class C developmental processes have progressed.

Since the time of application for extending the validity of the Exemption approval, the station's GLF has reduced to approximately 54%, and this has resulted in less ash being produced. With this lower ash production, and if the current GLF maintains, Eskom determined prior to the Amendment Process that it would take longer than 4 years to use the area under the Exemption. It is estimated that a footprint of 11ha is the area that will not have been used by the end of the 4 years, and would create a gap if not used. Due to such a gap, the ADF body would have a gap between the used area under Exemption and the new lined footprint. As mentioned in the alternatives investigated to manage this gap, a gap in the ADF body, would have dire impacts, hence it was not regarded as a feasible alternative to be pursued.

**It must be noted that all principles of the NEMA have been considered.** These principles were

contemplated during the Integrated Environmental Impact Assessment process completed in 2015, with authorisation granted by the DEA in October 2015. Further, the exemption application process considered and addressed all NEMA principles, with authorisation granted by the DEA in May 2016. If the principles had not been considered, then it is expected that authorisations would not have been granted. The Exemption Amendment Application was assessed by specialists. It was found that the additional 11ha of deposition on this footprint would not to change the significance of the potential impacts from those determined in the Exemption application. Therefore the environmental and social interests of the receiving environment are not at additional risk than predicted in the Exemption application.

**Principle 2.2:** Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.

- There is an indication that this exemption amendment application has considered this principle and how the application would serve these interests equitably. In fact, a full public participation was undertaken for the Exemption Amendment Process as discussed in section 8 of the Motivation Report (**Appendix D**). This process encouraged the participation of potentially affected parties in order to identify, quantify and mitigate any socio-economic risks.
- In addition, the exemption application process carried out in 2016, undertook a robust public participation process as per Chapter 6 of the NEMA EIA Regulations 2014.

**Principle 2.3:** Development should be socially, environmentally and economically sustainable.

- This principle was considered by the applicant as well as the Competent Authority during the exemption process. The fact that the exemption was granted is evidence that the development was deemed to be socially, environmentally and economically sustainable and that any negative impacts were considered to be within acceptable levels, by the Authorities.
- Sustainable development also infers that solutions must be economically sustainable. Therefore, provided that the environmental impacts are not unacceptable, the applicant may implement the solution that is also most cost-effective.
- Environmental sustainability was motivated in the supporting groundwater impact report (**Appendix E**), which concludes that “an extension in the duration of ashing within the residual exemption period to cover the residual area of 11ha will not change the groundwater impacts determined by SLR (2014) . . .”
- Furthermore, the Specialist Wetland Impact Assessment Review (**Appendix F**) concludes that “An extension of the duration of Exemption period to cover the residual area of 11ha does not influence the residual significance of any of the anticipated impacts identified during the 2014 assessment.”
- Economic sustainability was considered because the preferred option was selected to avoid delays, non-compliances or temporary shutdown of the Power Station and to continue ashing on the remaining footprint under the exempted 54ha. This option minimises national economic impacts due to instability of the national electricity grid, but also does not have additional impacts than the previous Exemption application process had determined.

**Principle 2.4:**

Not all of the points made in Principle 2.4 are relevant to this Appeal Application. However, those that are relevant have been addressed through the various environmental processes undertaken for this project. Below, the relevant points of Principle 2.4 are discussed in terms of this Project.

(a) Sustainable development requires the consideration of all relevant factors including the following:

Initial/s:



- i. That the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided, are minimised and remedied;
- ii. That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- iii. That the disturbance of landscapes and sites that constitutes the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
- iv. That waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;
- v. Not relevant;
- vi. Not relevant;
- vii. That a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
- viii. That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

In response to Principle 2.4 (a), the legislated EIA process requires the specific assessment of all of the above points. The EIA included specialist studies on biodiversity (point i), air quality, noise, visual impacts (point ii) and cultural heritage (point iii). The Integrated EIA included a Waste Management License Application to focus on waste management, minimisation, mitigation, and disposal (point iv). The EIA process is inherently designed to be risk-averse and to take cognisance of the precautionary principle to ensure that knowledge gaps are considered in all recommendations and actions (point vii). The EIA process included the compilation of an Environmental Management Plan (EMP) which is expressly compiled to provide prevention, minimisation, mitigation and management strategies and action plans to address negative impacts to both the biophysical and the social environment (point viii).

- (b) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.

Principle 2.4 (b) is contemplated throughout the legislated processes that have been undertaken for this Project. The findings from independent specialists to inform the integrated assessment of project alternatives and recommend mitigation and action plans ensures that environmental and social aspects are cohesively addressed. The Public Participation Process allowed for the incorporation of comments and recommendations from interested and affected parties to inform the impact assessment and the consideration of practical management strategies.

- (c) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.

During the three legislated processes undertaken for this Project, there have been extensive Public Participation Processes (PPP) carried out in order to engage with Interested and Affected Parties (IAPs). During these PPP, there have been no objections or appeals received against the Project. This is a good indication that the Project is being carried out justly.

- (d) Not Relevant  
(e) Not Relevant



- (f) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.

During the three legislated processes undertaken for this Project, there have been extensive PPP carried out in order to engage with Interested and Affected Parties (IAPs). The PPP including the project announcement, which was made via site notices, newspaper advertisements and Background Information Documents to all key stakeholders, including neighbouring landowners.

- (g) Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.

During the three legislated processes undertaken for this Project, there have been extensive PPP carried out in order to engage with Interested and Affected Parties (IAPs). The PPP including the project announcement, which was made via site notices, newspaper advertisements and Background Information Documents to all key stakeholders, including neighbouring landowners. A Comments and Response Report (CRR) was compiled at each stage of the Application Processes, specifically to document the comments, questions and general input provided by the IAPs.

- (h) Not Relevant.

- (i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.

This Principle is the express purpose of the legislated EIA, Exemption and Exemption Amendment processes. The Impact Assessment methodology for the EIA was presented to the competent authority during the Scoping Phase in order to confirm that this methodology addressed the NEMA Principles. The Impact Assessment submitted in the EIA to the competent authority was approved through the Environmental Authorisation, indicating that Principle 2.4 (i) was addressed within the EIA.

- (j) Not Relevant.

- (k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

During the three legislated processes undertaken for this Project, there have been extensive PPP carried out in order to engage with Interested and Affected Parties (IAPs). The PPP including the project announcement, which was made via site notices, newspaper advertisements and Background Information Documents to all key stakeholders, including neighbouring landowners. During the three Application Processes, no objections or appeals were received.

- (l) Not Relevant

- (m) Not Relevant

- (n) Not Relevant

- (o) Not Relevant

- (p) Not Relevant

- (q) Not Relevant

- (r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures,

<p>especially where they are subject to significant human resource usage and development pressure.</p> <p>Due to the occurrence of wetland habitats in proximity to the Tutuka Continuous ADF, a wetland specialist study was carried out and the Project activities, as well as the Environmental Management Plan were informed by the findings and recommendations of the specialist wetland study.</p> <p>The highlighted principles above were considered by the applicant as well as the competent authority during the exemption approval process. The fact that the exemption was granted is evidence that the development is socially, environmentally and economically sustainable and that any negative impacts are considered to be within acceptable levels.</p> <p>The specialist studies carried out for the Exemption Amendment Application (<b>Appendices E and F</b>) indicate that the continued ashing on the remaining 11ha would not have additional impacts on the social or biophysical environment.</p> <p>In conclusion, Eskom submits that there is no merit to the rejection, as the basis of rejection is not supported by the specialist studies undertaken to investigate this application, which have concluded that the application will not cause additional significant impacts to those already identified in 2014.</p>	
<p><b><u>Ground 2: Failure to consider specialists reports submitted with Exemption Amendment Application</u></b></p> <p><b><u>Authority reason 1. “The cost of water lost in unlined facilities and consequential water treatment costs almost always exceed the barrier costs in coal ash and mine tailings facilities. The unjustified claim by Eskom on cost comparison ignores stability which requires drainage of the foundations”</u></b></p> <ul style="list-style-type: none"> <li>• Neither the Exemption Application nor the Exemption Amendment Application submitted cost-related information as a basis for motivation of the application.</li> <li>• Eskom is in the process of developing the C Class liner beyond the 54ha, as approved by the exemption approval.</li> <li>• The reason relating to cost comparison as stated by the Competent Authority is deemed not applicable to the Exemption Amendment Application. Eskom is not avoiding the lining of the Continuous ADF but is requesting that the Exemption of the remaining 11ha of the 54ha (which was assessed as an equivalent footprint of ashing for 4 years) be maintained for an additional timeframe. Eskom is in the process of developing the required Class C liner, which is at advanced stages, and will be ready for implementation by the time the remaining 11ha has been ashed.</li> <li>• Eskom presented the options that were assessed upon realization of the gap at the end of the Exemption validity, and these included retrofitting of the Class C designs. The assessment inferred that, considering the current progress/stages of development for the Class C liner, this option would require <u>time and costs and would delay the submission to the Authorities for decision making, as well as cause a delay in execution of the liner project</u>. In terms of striving for compliance with the liner, this option creates a risk to the installation of the liner.</li> <li>• Eskom acknowledges that unlined facilities, if not well prepared, may cause impacts to groundwater, but Eskom obtained appropriate Water Use License that dictated monitoring and management of the ADF.</li> <li>• The area for which the extension is submitted was already approved for the same use, without the Class C liner.</li> <li>• This Authority’s reason does not consider the time delay that retrofitting of the liner would cause. This</li> </ul>	



<p>would mean that either the Tutuka Power Station would not have an ashing space, yet the same footprint had been approved for this use already. The economic impacts are that Tutuka Power Station would need to cease operation for a significant period until the liner was retrofitted and constructed. This would have dire consequences on the National electricity security of supply, resulting in negative social and economic implications for the country.</p> <ul style="list-style-type: none"> <li>• Specialist environmental investigations and reports were submitted with the Exemption Application Motivation Report submitted in 2015 (<b>Appendix G</b>). These studies focused on surface water, groundwater and social impacts and are summarized in the Motivation Report.             <ul style="list-style-type: none"> <li>○ The surface water specialist indicated that the most significant impact of the Tutuka ADF would be the loss of the wetland habitat that falls within the footprint of the ADF. <u>This is regardless of whether the ADF is lined or not.</u></li> <li>○ The surface water report indicates that the greater part of the proposed Tutuka Continuous Ash Disposal Facility is “drained by one catchment, which is already impaired in terms of the functional integrity of associated wetlands.” The report found that the alternative to continue the Tutuka ADF presented considerably less overall aquatic risk than other alternatives. The exemption from lining would not affect the significance of these impacts.</li> <li>○ The groundwater specialist concluded that “the most significant impacts identified by the groundwater studies during the operational phase of the facility were mostly rated as LOW. Future lining of the facility will reduce the significance of these impacts even further.”</li> <li>○ The social specialist study which was carried out for the Exemption Amendment Application (2019) indicated that no measurable change or social impact is expected to the social environment should the ADF remain unlined for the proposed 4-year exemption period.</li> </ul> </li> <li>• The Exemption Amendment Application (2019) for extension of validity considered specialist investigations for wetlands/surface water, and groundwater.             <ul style="list-style-type: none"> <li>○ The supporting groundwater impact report (<b>Appendix E</b>) concludes that “an extension in the duration of ashing within the residual exemption period to cover the residual area of 11ha will not change the groundwater impacts determined by SLR (2014).”</li> <li>○ Furthermore, the Specialist Wetland Impact Assessment Review (<b>Appendix F</b>) concludes that “An extension of the duration of Exemption period to cover the residual area of 11ha does influence the residual significance of any of the anticipated impacts identified during the 2014 assessment.”</li> </ul> </li> <li>• The Exemption Application assessed the potential impacts of ashing on 54ha of unlined footprint over a period of 4 years. The Exemption Amendment Application assessed the ashing on the remaining 11ha of the approved 54ha of unlined footprint. The Groundwater and Surface Water reports for the Exemption Amendment Application indicate that the continued ashing on the remaining 11ha for an extended timeframe, will not generate any additional impacts to wetlands or groundwater than were identified during the Exemption Application process in 2015 (<b>Appendices E and F</b>).</li> </ul>	
<p><b><u>Authority reason 2. “Leaving out a liner does not imply stable disposal – and this is known worldwide as seen by numerous hydraulic deposit failures around the world with consequential loss of life and pollution. The Eskom cost comparison excludes foundation drainage stability, as well as the socio-economic costs to the State and public for unlined facilities and resultant pollution remediation, including water treatment and dilution”</u></b></p> <ul style="list-style-type: none"> <li>• Neither the 2015 Eskom’s Exemption application nor the 2019 Exemption amendment are based on not having a liner due to stability of the facilities nor the cost of lining; thus, this reason by the Authorities is not applicable to the submissions made by Eskom.</li> <li>• In September 2019, the Eskom Board approved a budget for the lining of the ashing area, dirty water</li> </ul>	

canals and pollution control dams. A Public Financial Management and Accountability (PFMA) information letter has been sent to the Department of Public Enterprises (DPE) informing them of the Board decision.

- Additionally, the current amendment application does not change the area and footprint that has been exempted from lining, nor the requirement for alternative mitigation action. Eskom has progressed with developmental work for the Class C liner, which is to start beyond the area under Exemption, and this shows Eskom's commitment to lining the facility, and the Authorities' reason on costs is not applicable. Therefore, the above reason is not valid to this amendment application.
- Eskom is not requesting the avoidance of lining or "leaving out a liner" but merely that the Exemption for the 54ha, as already approved, is maintained for an additional duration. This is a practical request to maintain a continuous ash facility, without reducing the capacity of the current ash dump plans or resulting in a need for an ashing footprint elsewhere. Therefore, this amendment application is not a request to avoid environmental or social responsibility.

Neither the Exemption Application nor the Exemption Amendment Application discuss the costs of the liner or any cost comparisons. The Exemption Application and the Exemption Amendment Application are not based on cost implications, but rather on operational practicalities, project risk, and the need to avoid potential for significant environmental and social impacts that might transpire if Eskom had to acquire additional land to compensate for lost ashing capacity.

This reasoning does not apply to the exemption amendment application as the 54ha was already exempted from lining. Therefore, it is anticipated that the competent authority has established that any negative environmental or social impacts of ashing without the liner were within tolerable levels. The required mitigation, monitoring and management actions as per the exemption approval were assessed to remain in place and implemented throughout the ashing of the remaining 11ha.

This Exemption Amendment Application is not motivating to exclude a liner, but to extend the timeframe for ashing on the exempted 54ha surface for a further time period, in line with operational requirements.

**Authority reason 3. "The proposed amendment will result in disputes over precedence among other Type 3 waste producers of the mining and industrial sectors as the members of the mining sector have already raised allegations of unfairness following the four (4) years dry ash exemption granted by DWS to Eskom for some Power Station some years ago."**

- The 4-year Exemption granted by the DEA was to address a transitional period between the granting of the IEA and the design, procurement and construction of the Class C liner. It is not physically possible to receive an IEA and immediately install a liner, without adhering to due process. The Department's decision was therefore deemed reasonable. If other industries believed this was a poor decision, they could have used the mechanisms of appeal provided for in the legislation, as they were notified upon acquisition of the Exemption approval. Additionally, even the process to extend the validity of the Exemption did not attract objections from the industry.
- The Exemption Amendment Application proposes the most practical solution to the 11ha gap in the ADF body. The specialist studies have confirmed that there will be no additional significant impacts to the receiving environment due to continued ash deposition on the remaining 11ha.

**Authority reason 4. "Non-compliance with legislation including the constitution of the Republic of South Africa, bill of human rights, National Environmental Management Act principles of decision making by authorities, National Water Act sections on pollution control and factors to be considered for licensing and the Public Finance Management Act requirements of effective and efficient use of resources."**

- The ash disposal facility complies to all of the above-mentioned legislation, and the appropriate processes have been carried out to obtain the required authorisations. The current amendment application was submitted in order to ensure compliance to all relevant legislative requirements relevant to the ash disposal processes, as required for station operations.
- It must be noted that the footprint of the area to remain unlined will not change from the footprint approved by the competent authority in the exemption process. The only change is that the length of time that ashing will continue on the unlined surface is extended. Therefore, the above reason is not valid to the Exemption Amendment Application.
- Eskom is at advanced stages with the development and the liner designs were submitted to DWS in 2019 for their comment, and no response was received. Eskom is committed to installing the liner as approved by the authorities, and is in the process of updating the designs for submission for approval.

**As per the responses made by the applicant in the sections above, it is clear that:**

1. The specialist studies undertaken for the Exemption Application indicated that there are impacts generated by deposition of the ash on an unlined area of 54 ha. However, these impacts are of low significance and can be mitigated effectively. On this basis, the Exemption was approved for the 54ha, considering these potential impacts.
2. The Exemption Amendment process has referred to the findings of the Exemption Motivation Report, including specialist findings, and has conducted further specialist investigations. The key specialist investigations for groundwater and wetlands have concluded that the Exemption Amendment Application to continue deposition on the remaining 11ha of the exempted 54ha will not have additional impacts on the wetland and groundwater environment than those impacts assessed during the Exemption Application of 2015;
3. Considerations by Eskom on alternatives to manage the 11ha gap included:
  - Implications of delays in preparation of the Class C liner;
  - The approval of the retrofit liner would result in delay pending approval, and this would generate a significant risk to the project maintaining compliance;
  - Potential environmental and social impacts;
  - The fact that additional land would be required to compensate for the 11ha gap if it is not utilised, so as to compensate for the lost ashing capacity;
  - Other operational challenges related to the functioning of a dry ashing facility, as well as the project risk in terms of the delays, should this 11ha be made to retrof with the Class C liner.
4. The most practical alternative, which was part of the approved area of exemption, and was determined not to have additional environmental social, or economic impact to the receiving environment, is to continue ashing on the 11ha while implementing all the requirements of the Environmental Management Programme, EMPr, allowing for the Class C liner to be ready for ash deposition beyond the 11ha.
5. The continued ashing on the remaining 11ha is the most practical solution to this challenge and was assessed by specialists and found not to have additional impacts on the receiving environment.
6. The reasons put forward by the Competent Authority against the Exemption Amendment Application are not a reflection of Eskom's submission for the Amendment Application to extend the validity of the Exemption approval, and are contrary to the decision made to approve the 2016 Exemption Application, yet the specialist studies have not indicated any anticipated additional impacts due to use of the 11ha;
7. There is no reasonable argument provided within the rejection of this application, and therefore the applicant hereby requests the Minister to uphold this appeal, and overturn the Authority's decision to refuse the Exemption Amendment Application thereby providing Eskom permission to ash on the remaining 11 hectares of unlined deposition area. The Class C liner will be in place for any further ash deposition beyond the 11 hectares.

**Appellant Representative**

Name & Surname: Deidre Herbst

Date: 29 April 2020

Signature: 

**ARR comments by Case Officer**

Name & Surname:

Date:

Signature: .....

**Approved by Supervisor**

Name & Surname:

Date:

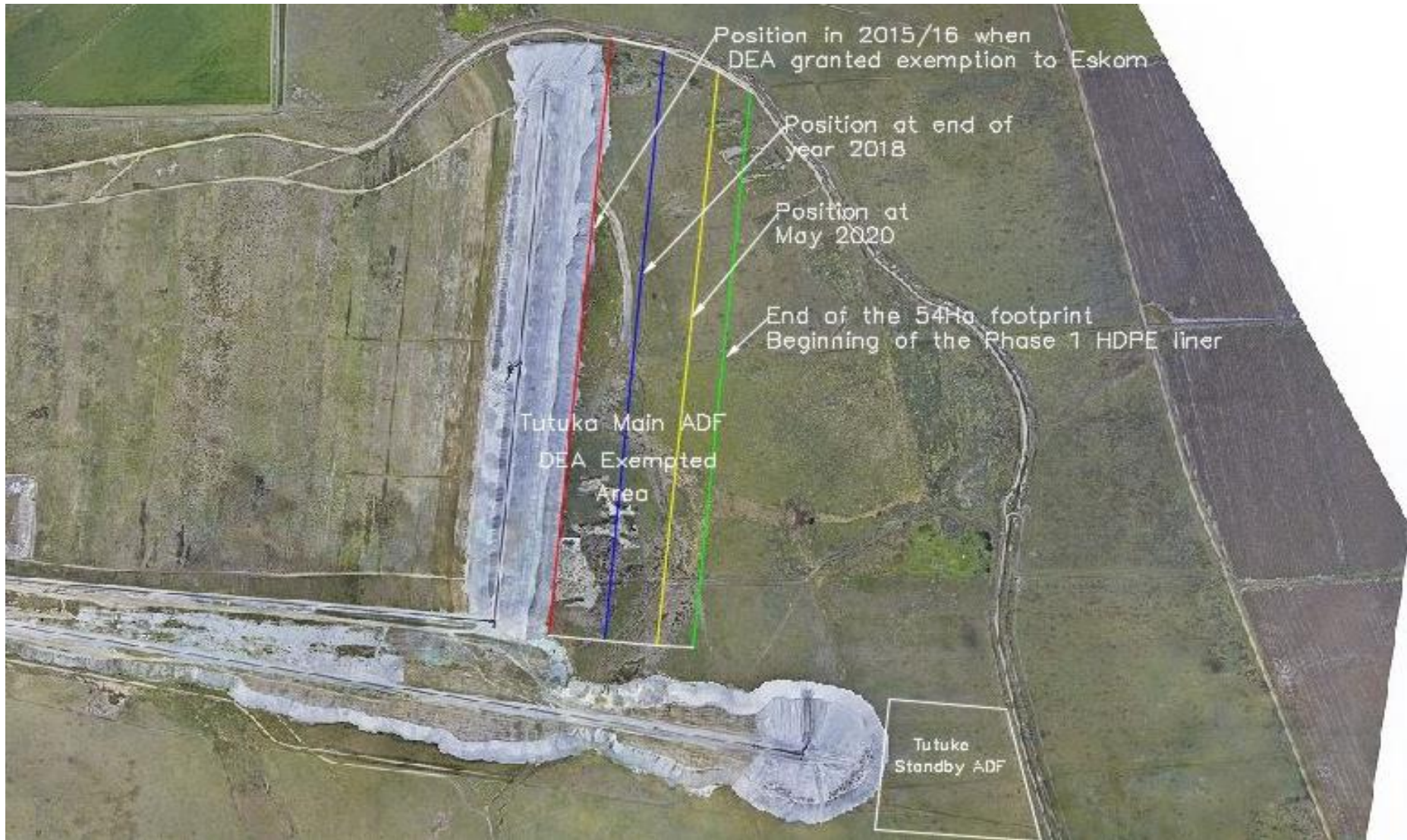
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## Appendix A – Map Indicating the Tutuka ADF progression

A handwritten signature in black ink, appearing to be 'E.S.', is located at the bottom right of the page.



**AMENDMENT OF THE EXEMPTION FROM LINING REQUIREMENTS ISSUED ON 19 OCTOBER 2015 FOR THE PROPOSED CONTINUOUS ASHING AT THE TUTUKA POWER STATION ASH DISPOSAL FACILITY, MPUMALANGA PROVINCE: DEA REF: 14/12/16/3/3/3/52/AM2.**



Progression of ashing on the 54ha exempted from lining



## Appendix B – Generation Load Factor

		GLF Total
	FY1996	0
	FY1997	0
	FY1998	41.46
	FY1999	50.92
20	FY2000	43.17
19	FY2001	31.57
18	FY2002	24.8
17	FY2003	41.49
16	FY2004	47.91
15	FY2005	59.38
14	FY2006	51.78
13	FY2007	61.5
12	FY2008	68.05
11	FY2009	69.94
10	FY2010	64.55
9	FY2011	62.01
8	FY2012	66.51
7	FY2013	62.79
6	FY2014	58.86
5	FY2015	66.98
4	FY2016	59.61
3	FY2017	52.13
2	FY2018	54.41
1	FY2019 _03Mar19	49.67

## Appendix C – Proof of Submission of the Class C liner Detailed Design to DWS (May 2019)

A handwritten signature in black ink, appearing to be 'DWS', is located at the bottom right of the page.

Mr Sibusiso Mthembu  
Regional Head: Gauteng Region  
Department of Water and Sanitation  
Pretoria  
0001

**MEMO**

DEA Ref No: 14/12/16/3/3/52

**SUBMISSION: DETAILED DESIGNS FOR TUTUKA CONTINUOUS ASH DISPOSAL FACILITY**

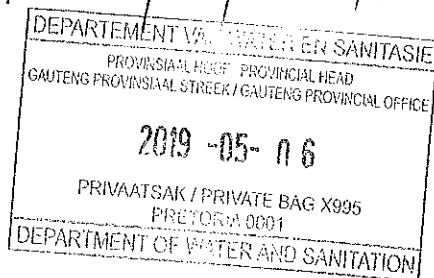
- 1 x CD with designs and engineering reports
- Hard copies of designs

Received by: .....

*Dushup Moletsi*

Date of receipt: .....

*06/05/2019*



## Appendix D – Exemption Amendment Motivation Report

A handwritten signature in black ink, appearing to be 'JMS', is written over a small, light-colored rectangular stamp or watermark.



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**Part 2 Amendment application of Exemption approval for the  
continuous ashing at the Ash Disposal Facility, at Tutuka  
Power Station, Mpumalanga Province**

**MOTIVATION REPORT**

**FINAL**

September 2019

Eskom (Pty) Ltd

GCS Project Number: 19.0217

DEA Ref No: 14/12/16/3/3/3/52 and

NEAS Ref. No.: DEA/EIA/0001416/2012

Client Reference: Tutuka Part 2 Amendment Application



**Part 2 Amendment application of Exemption approval for the proposed continuous ashing at the Ash Disposal Facility, at Tutuka Power Station, Mpumalanga Province.**

FINAL





04 September 2019

Eskom (Pty) Ltd

19.0217

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## EXECUTIVE SUMMARY

Eskom Tutuka Power Station (Tutuka) applied for, and obtained, an Integrated Environmental Authorisation (IEA), 14/12/16/3/3/3/52 & DEA/EIA/0001416/2012, for its continuous Ash Disposal Facility (ADF) from the Department of Environmental Affairs on 19 October 2015.

Subsequent to this authorisation, the station applied for a 4-year Exemption from installing the required liner (a Class C liner), as a means to allow station ashing operations to continue while the required designs of the Class C liner were being developed, and to allow for its installation. To inform the Exemption application process, the equivalent footprint (area) for the 4-year Exemption was estimated to be 54ha and was assessed and motivated by an independent Environmental Consultant. The DEA granted the 4-year Exemption on 5 May 2016, and it had some conditions. The Exemption period will lapse on 4 May 2020. Parallel to ashing on the area under the Exemption, developmental work was executed for the Class C liner for the Ash Disposal Facility, commencing beyond the area under the Exemption.

In 2018, Tutuka realised that the 54ha approved under the Exemption would not be fully utilised at the end of the 4-year Exemption period, and a process to determine the most feasible option to manage this gap was undertaken, whereby a few alternative strategies were assessed. Through the assessment process a decision was made that the most feasible option was to apply for an extension of the Exemption period, without extending the area under the Exemption.

To execute this strategy, Eskom undertook a Part 1 amendment process in November 2018, but the DEA rejected that application (dated 09 January 2019) and required that a Part 2 amendment process be undertaken instead (which is the subject of this application).

This application includes the following as requested by the DEA in a letter dated, 09 January 2019:

- This motivation report outlining detailed reasons and a justification for the amendment application;
- Specialist Hydrogeological Assessment Review, Appendix A, prepared by GCS Pty Ltd.
- Specialist Wetland Impact Assessment Review, Appendix B, prepared by Ecotone Freshwater Consultants CC;
- A Public Participation Report, Annexure C, prepared by GCS (Pty) Ltd outlining the public participation process conducted in accordance with the National Environmental Management Act (Act No. 107 of 1998) (NEMA) EIA Regulations; and
- The results of monitoring programmes requested to be developed in the Exemption issued on 05 May 2016.

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## 1 INTRODUCTION

Eskom Tutuka Power Station (Tutuka) is located approximately 25 km north-north-east (NNE) of Standerton in the Mpumalanga Province. The power station falls within the Lekwa Local Municipality which falls within the Gert Sibande District Municipality. The station applied for, and obtained, an Integrated Environmental Authorisation (IEA), 14/12/16/3/3/3/52 & DEA/EIA/0001416/2012, for its continuous Ash Disposal Facility (ADF) from the Department of Environmental Affairs on 19 October 2015.

Subsequent to this authorisation, the station applied for a 4-year Exemption from installing the required liner (a Class C liner), as a means to allow station ashing operations to continue while the required designs of the Class C liner were being developed, and to allow for its installation. As part of the Exemption application process, the equivalent footprint (area) for the 4-year Exemption was estimated to be 54ha and was assessed and motivated by an independent Environmental Consultant. The DEA granted the 4-year Exemption on 5 May 2016, and it had some conditions. The Exemption period will lapse on 4 May 2020. Parallel to ashing on the area under the Exemption, developmental work was executed for the Class C liner for the Ash Disposal Facility, commencing beyond the area under the Exemption.

In 2018, Tutuka realised that the 54ha approved under the Exemption would not be fully utilised at the end of the 4-year Exemption period, and a process to determine the most feasible option to manage this usage gap was undertaken, whereby a few alternative strategies were assessed. Through the assessment process a decision was made that the most feasible option was to apply for an extension of the Exemption period, without extending the area under the Exemption.

To execute this strategy, Eskom undertook a Part 1 amendment process in November 2018, but the DEA rejected that application (dated 09 January 2019) and required that a Part 2 amendment process be undertaken instead (which is the subject of this application).

GCS Water and Environment (Pty) Ltd (GCS), as independent environmental consultants were appointed by Eskom (Pty) Ltd to undertake the Part 2 Exemption amendment application process to the Exemption issued, in terms of Regulation 31 and 32 of GN 326; prepare this motivation Report and conduct the associated public participation process in terms of Chapter 6 of the EIA Regulations, 2014, as amended. In addition, confirmation from specialists is required that the proposed extension will not have any additional impacts to those that have already been identified during the 2014 application.

## 2 LEGAL FRAMEWORKS

This report fulfils the requirement of the EIA Regulations (2014) for the documentation of the Amendment Application process. This Amendment Report was compiled in accordance with Section 32 of NEMA's 2014 EIA Regulation (GN R. 982).

### 2.1 Amendment process requirements

In terms of Regulation 31 and 32 of the NEMA Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) Eskom is applying for an amendment to the Exemption that was issued to Tutuka Power Station. Regulation 31 (Part 2) of the 2014 NEMA EIA Regulations states that:

***“An environmental authorisation may be amended by following the process prescribed in this Part if the amendment will result in a change to the scope of a valid environmental authorisation where such change will result in an increased level or nature of impact where such level or nature of impact was not (a) assessed and included in the initial application for environmental authorisation; or (b) taken into consideration in the initial environmental authorisation; and the change does not, on its own, constitute a listed or specified activity.”***

As per sub-regulation (a), the potential impacts which the changes to the land use and approved layout plan might have on the receiving environment, need to be assessed according to the change in level or nature of impact.

## 3 ACTIVITY DESCRIPTION

The operation of the ash disposal facility is such that the facility expands in the eastern direction, where the main stacker system is shifted to the next position every 6 months. This process is repeated twice a year. The main disposal facility is expanding by 80 meters (horizontally) annually, where the shift distance is 40 meters at a time. Through these shifting Eskom covers the remaining landscape in front of the ash disposal facility at a rate of 80 meters per year. The face width of this main disposal facility is about 1300 meters and the front face height is about 32 meters.

The main disposal facility is in operation for about 85% of the time every year. The standby ash disposal facility is also expanding in the eastern direction at a rate of 240 meters and its face width is about 100 meters. The height of this face is about 35 meters. This standby ash disposal facility is covering the front landscape at a rate of 240 meters every year. The standby ash disposal facility is in operation for the remaining 15% of the time when the main ash disposal facility system is not available. The standby ash disposal facility's remaining volume is much smaller than the main ash disposal facility.

## 4 ESKOM MOTIVATION FOR THIS AMENDMENT APPLICATION

Tutuka Ashing Disposal Facility (ADF) applied for, and obtained, an Integrated Environmental Authorisation (IEA), 14/12/16/3/3/3/52 & DEA/EIA/0001416/2012, for its continuous Ash Disposal Facility (ADF) from the Department of Environmental Affairs on 19 October 2015. From an environmental perspective, the motivation for the Exemption application was based on surface water and groundwater reports as well as the ash classification results that formed part of the ADF's EIA process. The intention of the studies and models was to illustrate a worst-case scenario (i.e. ashing without installing a Class C liner) and therefore did not include any mitigation measures in the formulation of predictions. The result of that exercise was that the identified impacts and their significance ratings sketch the unmitigated state. The impacts as identified in the surface and groundwater reports were determined to be the potential impacts that would be experienced during the transitional period (prior to lining). Although Eskom is committed to be compliant with all environmental legislation in connection with its ashing activities for Tutuka Power station, the lining of the future ashing area could only be provided after four (4) years from receipt of the IEA. This duration was due to consideration of project planning lead times within the internal and external governance processes (e.g. Public Finance Management Act (PFMA), application to the Department of Public Enterprises). The estimated footprint required for this 4-year exemption period was only 54ha.

Subsequent to the 2015 IEA, the station applied for a 4-year Exemption from installing the required liner (a Class C liner). The equivalent footprint for the 4-year Exemption was estimated to be 54ha and was assessed and motivated by an independent Environmental Consultant. The DEA granted the 4-year Exemption on 5 May 2016, and it had some conditions. The Exemption period lapses on 4 May 2020. Parallel to ashing on the area under the Exemption, developmental work was executed for the Class C liner for the rest of the Ash Disposal Facility.

In 2018, it was realised that the 54ha approved under the Exemption would not be fully utilised at the end of the 4-year Exemption period due to a change in the Generation Load Factor (GLF) which happened after the issuance of the Exemption approval. An approximate extent of 11ha (of this 54ha) will remain unused after the four-year period which ends in 4 May 2020. A process to determine the most feasible option to manage this usage gap was undertaken, whereby a few alternative strategies were assessed.

To address the 11ha gap, Eskom proposed and assessed the following three (3) options (as presented below):



**1. Retrofit designs to include lining the gap area:**

With this option, a bigger footprint of the ADF would be covered under the Class C liner resulting in less impact than assessed in the exemption application. The retrofit would require time and costs and would delay the submission to the Authorities for decision making, as well as cause a delay in execution of the liner project. In terms of striving for compliance with the liner, this option creates a risk to the project. It was decided that this option should not be pursued, as it does not support the project timelines.

**2. Leave the gap area unused:**

Through this option, there would be a gap in the body of the ADF, between the current/unlined footprint and the new lined footprint. This option would result in loss of ashing capacity, which would require Tutuka power station to source an additional ashing capacity, on additional grounds. This strategy would not support the objective of reducing the environmental footprint. From the operations point of view, the conveyor belts are run on top of a continuous ash body. The gap would create discontinuity which would create risks of ash spillages, thereby causing environmental problems. It was decided that this option should not be pursued, as it does not support the continuous operations and it creates environmental risks.

**3. Continue to ash on the gap area under Exemption without a liner (i.e. this application):**

By executing this option, the operational functionality of the ADF will be continuous, and there will be no risks related to spillages from conveyor belts due to uneven support. There are no additional impacts created since this 11ha is part of the footprint assessed under the exemption application. No rights of individuals will be infringed upon. Tutuka power station will not need to source an additional ashing capacity elsewhere, but this option allows optimisation of the current ADF designs. It was decided that this option should be pursued, as its footprint and significance of impacts is the same as the current exemption approval.

Through the assessment process a decision was made that the most feasible option was to apply for an extension of the Exemption period, without extending the area under the Exemption.

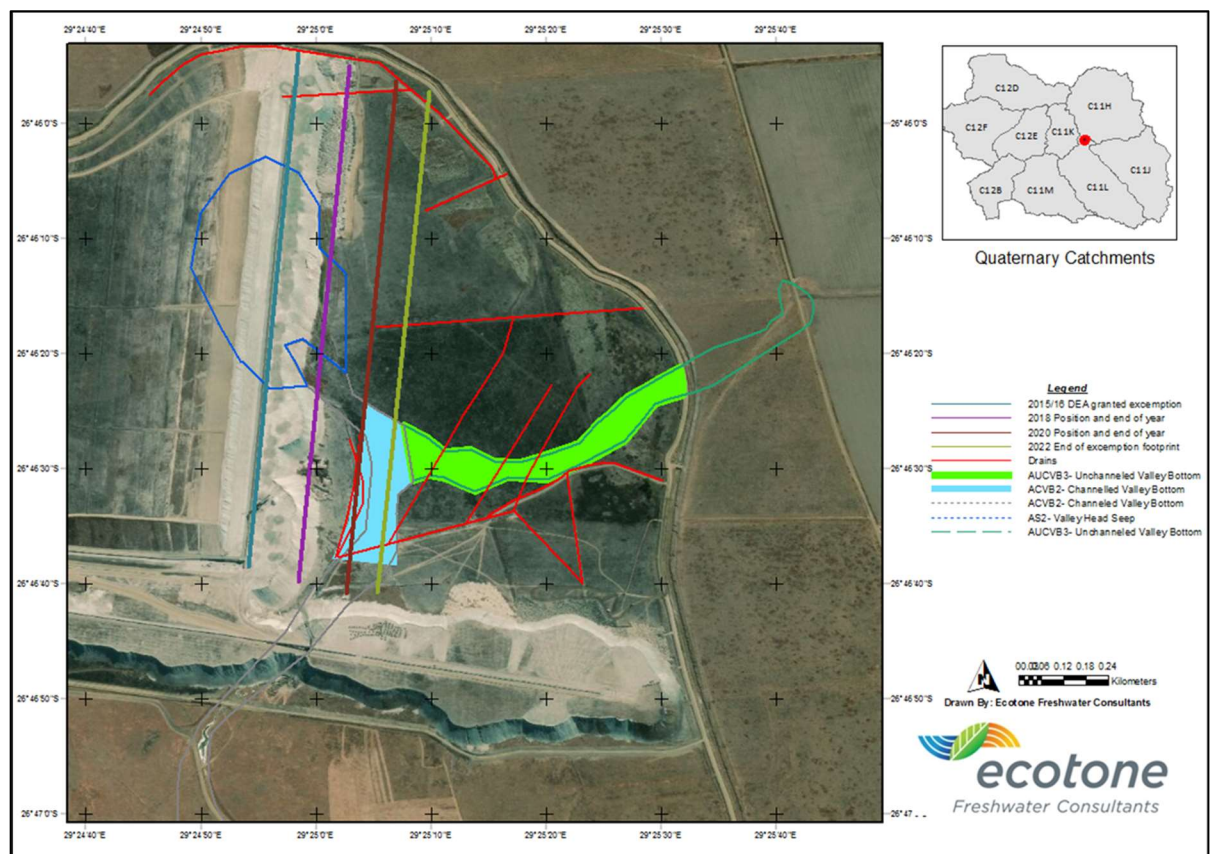
To execute this strategy, Eskom undertook a Part 1 amendment process in November 2018, but the DEA rejected that application (dated 09 January 2019) and required that a Part 2 amendment process be undertaken instead (which is the subject of this application).

## 5 WETLAND IMPACT ASSESSMENT REVIEW

For the full Wetland Impact Assessment Review report compiled by Ecotone Freshwater Consultants, refer to **Annexure C**.

### 5.1 Project area

Tutuka Power Station is located approximately 25 km north-north-east (NNE) of Standerton in the Mpumalanga Province. The power station falls within the Lekwa Local Municipality which falls within the Gert Sibande District Municipality. A greater part of the study area is, is within an 8 km radius of the centre point of the Tutuka Power Station Site, and is made up of agricultural, mining and power generation activities **Figure 5.1** shows the study area in relation to Exemption area.



**Figure 5.1: Study area in relation to Exemption area**

### 5.2 Wetland Assessment

The following wetland assessment methods have been applied after the May 2019 field assessment:

- A WET-Health level 2 assessment was undertaken to ascertain variation in the PES between the 2013 and 2019 assessments. Wetland PES assessment was completed according to the methodology by Macfarlane *et al.* (2009);
- A WET-EcoServices level 2 assessment was used to assess the “ecological goods and services” provided by each particular HGM wetland unit. The tool provides information on the importance of a wetland in delivering different ecosystem services under a number of different categories (Kotze *et al.*, 2009);
- Ecological Importance and Sensitivity (EIS) scores were calculated using the RDM (Kleynhans, 1999) methods.

### 5.3 Summary of Wetland Information

#### 5.3.1 Desktop Information

The authorised Exemption area is located with the upper parts of the Wolwespruit catchment. The Wolwespruit drains into the Grootdraai Dam which in turn, is drained by the Vaal River. Desktop information regarding the Wolwespruit is summarised in **Table 5.1**.

**Table 5.1: Significance rating categories showing values for Low, Medium and High significance**

Desktop Information	Details/Category/Class
River	Wolwespruit
River Order	1
River Length	23.2km
Hydrological Class	Non-perennial
River Signature	Highveld 3
Conservation Status (Nel <i>et al.</i> , 2004)	Critically Endangered
C-Plan (MBCP- Ferrar & Lötter, 2007)	Ecosystem Maintenance
River NFEPA (Nel <i>et al.</i> , 2004)	Upstream Management Area
Water Management Area	Upper Vaal
Aquatic Ecoregion	Highveld
Quaternary Catchment	C11L
Sub-Quaternary Reach Name	C11L-01825
Present Ecological State (PES- DWS 2012)	D
Ecological Importance and Sensitivity (EIS)	Moderate

### 5.4 Wetland Associated with the Exemption Area

The Exemption area occupies about 54 ha of the upper parts of the Wolwespruit catchment. Two hydrogeomorphic (HGM) units are directly affected by the footprint of this area, these include a valley head seep (AS2) and a channeled valley bottom system (ACVB2) (**Figure 5.1**).

Jointly, the two HGM units represented approximately 18 ha of residual seasonal and temporary wetland extent during the 2014 baseline assessment (**Table 5.2**).

The 2014 PES assessment indicated that both units fell into an E PES, indicating a Seriously Modified state. The poor PES was attributed to hydrological, geomorphological and other physical disturbances. For example, a review of historical aerial images shows that the valley head seep was drained during 2009 (see red arrow in **Figure 5.2A**). Similarly, hydrological connectivity with the upslope catchment has partially been lost pre-dating 2009 (**Figure 5.2A**), with a further loss associated with the expansion of the cut-off trench during 2014 (**Figure 5.2 B**) and complete hydrological isolation of the wetlands affected by the expansion of the cut-off trench around the southern parts of the ash disposal facility (**Figure 5.2 E**).

A revision of the PES indicated a further loss of functional integrity from an E to an F category as assessed during May 2019. The residual wetland extent on the Exemption footprint comprised approximately 5 ha. The valley head seep (HGM AS1) and a portion of the channelled valley bottom wetland (ACVB2) have been ashed over. The examination of the historical aerial images also indicated that additional hydrological modification occurred due to the draining of an unchanneled valley bottom system flowing into HGM ACVB2 (**Figure 5.2 E**). The spatial relationship between the residual wetland ACVB2 and AUCVB3 are provided in **Figure 5.1**.

The 2014 functional ecosystem services assessment of the wetlands indicated likely functions associated with flow augmentation, water purification, erosion control and maintenance of biodiversity (**Table 5.2**). The 2019 revision reflected a lower average Eco-Services score. The decrease in ecosystem services relates to the hydrological isolation of the HGM units associated with the Exemption area and the Ash Facility at large. Similarly, the EIS category decreased from Moderate (important and sensitive on a local scale) during 2014 to Low/Marginal (not important or sensitive at any scale) during 2019 (**Table 5.2**). The decrease in EIS may be attributed to the decrease in wetland extent (direct loss of wetland habitat) and the hydrological isolation of the HGM units as part of the stormwater management and pollution control for the ash disposal area.

The 2014 assessment (inter alia) identified and assessed the wetlands within the footprint of the exemption area. It was expected that the residual functions associated with these wetlands will be completely compromised after ashing. The additional loss in function described in the precluding paragraphs is expected and was considered within the 2014 assessment. It follows that residual wetland functions will remain (albeit constraint) until the affected wetland unit is completely ashed over. Of critical consideration is the downslope

environment in relation to an extended Exemption period (without increasing the footprint under the Exemption application).

**Table 5.2: Total wetland size within primary and secondary study area, PES totals, indirect ecosystem service scores and EIS score for Alternative A**

Wetland (HGM ACVB2)	ACVB2
Residual Wetland Extent on Exemption Footprint (2014)	18 ha
Residual Wetland Extent on Exemption Footprint (2019)	5 ha
PES (2013)	E
PES (2019)	E/F
PES of receiving watercourses	E/F
Eco-Services Score (Average 2013)	2.16
Eco-Services Score (Average 2019)	1.50
EIS (Median 2013)	Moderate
EIS (Median 2019)	Low

## 5.5 Background Water Quality

Water quality monitoring data was extracted from the relevant GHT reports. Surface water quality data relevant to the area downslope of the Ash Facility include monitoring locations WSS61, WSS32 and WSS06 (**Figure 5.3**). The 2015/2016 monitoring data for these sites are presented in **Table 5.3**. Site WSS61 was dry during this monitoring period. Site WSS32 is situated upslope of any runoff or seepage from the Ash Facility and therefore represented the control site. Site WSS06 is located further downstream on the Wolwespruit, but generally represented stagnant water.

The water quality data reviewed reflected alkaline pH values with moderately high salt loads. The September 2015 survey does not reflect any spatial variation between the control (WSS32) and test (WSS06) sites that may suggest point source pollution from the ash disposal facility. However, the June 2016 data measured a notable increase in Calcium, Magnesium and Sulphate levels at the test site, relative to the control site (**Table 5.3**). Thus, indicating some intermittent influence on the downstream water quality from the pollution control dams.

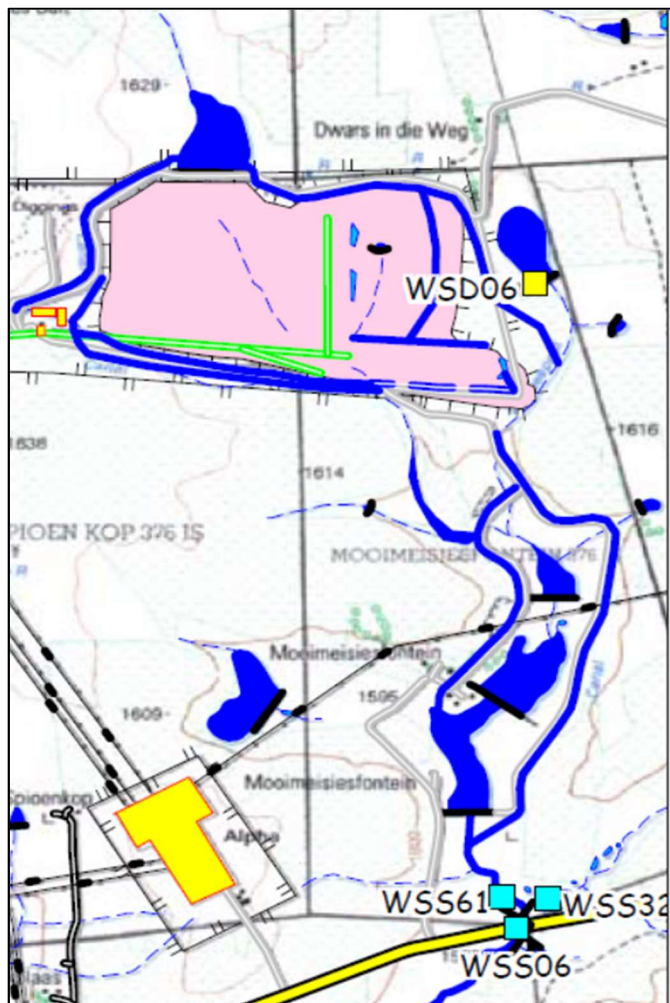




Figure 5.2: Historical aerial images of the ADF showing the advancement between October 2009 and April 2019.

**Table 5.3: Extract of water quality monitoring data for GHT monitoring reports for surface site located on the Wolwespruit (WSS06) and upstream of the Wolwespruit confluence (WSS32).**

Sites	Date	pH	EC mS/m	TDS ppm	Na mg/L	Mg mg/L	Ca mg/L	Cl mg/L	SO4 mg/L	F mg/L	K mg/L
WSS32	Sep-15	8.1	88.4	565	46.8	72.4	51.7	32.9	93.7	0.296	3.4
WSS32	Mar-16	Dry									
WSS32	Jun-16	8.2	64	506	40.3	45	36	32.4	72.5	0.3	5
WSS32	Oct-16	Dry									
WSS06	Sep-15	8.2	87.7	555	46.8	71.3	49.9	37.2	97.4	0.306	33
WSS06	Mar-16	8.7	68	430	36.3	47	48	26.5	35.7	0.4	9
WSS06	Jun-16	8.2	94	765	40.3	82	68	35.5	218.4	0.37	6
WSS06	Oct-16	8.57	131	818	80.8	111	73.4	58.4	60.5	0.523	12



**Figure 5.3: Relevant surface water quality monitoring points on the Wolwespruit.**

## 5.6 Revision of Wetland impact Assessment

This section provides a revision of impacts identified during the 2014 wetland impact assessment for the construction and operation phases. Operation activities occurs concurrently with construction activities (at different footprint area) and involves the spreading and stacking of dry ash, prepared during the construction phase. Construction activities entail removing vegetation and topsoil in the area immediately required for the advancement of the ashing facility, and preparation of the area. The current ashing philosophy is that ashing facility footprint is moving in an easterly direction and occupies a portion of the Wolwespruit catchment which is draining in a southern direction. Surface runoff and interflow from the Exemption footprint and general ashing facility are intercepted and directed to pollution control dams located within the natural drainage of the Wolwespruit.

### 5.6.1 Impacts identified during Construction Phase

#### 5.6.1.1 Alteration in Wetland Hydrology due to Changes in Surface Roughness

##### **Impact Description**

Clearing of vegetation results in decrease surface roughness and change in runoff characteristics. The residual area that will be cleared of vegetation within the Exemption area is approximately 11 ha. The natural topography of these 11 ha drains south towards a topographical low point as indicated in **Figure 5.1**. The surface and soil hydrology in this area is intercepted by 'fish bone' drains (see **Figure 5.1**, **Figure 5.2 E** and **F**). The downstream extent of hydrological alteration is limited for the following reasons:

- (i) all runoff from the area is intercepted by the southern portion of the ash disposal facility which results in localised ponding.
- (ii) Runoff is temporarily retained and drained underneath the ash disposal facility in the direction of three pollution control dams (the pollution control dams are located on the Wolwespruit).
- (iii) The underlying soils within the Exemption area predominantly consist of vertic soils with low hydrological conductivity.

It follows that the majority of the hydrological maintenance of the downstream wetlands will be through surface runoff. Because of these reasons the hydrological impacts associated with an increase in runoff rates due to changes in surface roughness will be limited to the Exemption footprint and the pollution control dams.

The resultant impact significance remains '**Low**' prior mitigation and the significance of the impact on hydrology due to changes in surface roughness during construction is assessed as '**Low**' prior to mitigation.



Extending the duration of construction within the existing Exemption area will not pose an additional risk to wetland hydrology.

#### **Proposed Mitigation Measures**

The following mitigation measures are recommended:

- Minimize peripheral vegetation clearing to the smallest possible extent and for the smallest possible time during construction;
- Stormwater management will require draining the topographical low point associated with the Exemption area, into the downslope pollution control dams. No flows will be released from the pollution control dams that may influence the hydrology of the downstream water resources.

The proposed mitigation measures aim to reduce the extent and duration of changes in runoff characteristics during construction.

The impact can further be reduced but will remain of '**Low**' significance after mitigation

#### *5.6.1.2 Impact on Surface Water Quality Due to Construction Activity*

##### **Impact Description**

The clearing of vegetation and topsoil in preparation for ashing will result in increased sediment loads, as well as other pollutants derived from spillage and leakage of construction machinery operating within the Exemption area during construction. The significance of the impact is assessed as '**Low**' prior to mitigation for the following reasons:

- (i) surface water is intercepted by the stormwater system and becomes part of the 'dirty' water which is directed into the pollution control dams.
- (ii) The intensity of seepage is likely to be low due to the underlying vertic soils.

Extending the duration of construction within the existing Exemption area will not pose an additional risk to water quality of the downstream water resource.

##### **Proposed Mitigation Measures**

Embedded controls are associated with the stormwater management during construction and relate to the following:

- Interception of sediment-laden (and otherwise contaminated) runoff through stormwater management of the construction area into the existing dirty water systems;
- Discharge of contaminated runoff will occur into the pollution control facilities and or reapplied within the existing ash disposal facility footprint.

The residual impact significance is assessed as '**Low**' after to mitigation as the implementation of the proposed mitigation will further reduce the probability of Water quality related impacts within the downstream environment.

### 5.6.1.3 *Impact on Wetland Vegetation and Disturbance of Wetland Habitat*

#### **Impact Description**

The residual wetland extent within the Exemption area is approximately 5 ha. The associated wetland vegetation that will be cleared during construction is largely transformed either through direct disturbances, alien vegetation encroachment (for example the high abundance and cover of *Bidens Formosa*- *Cosmos*) or terrestrialisation due to extensive draining of the wetland.

The loss of wetland vegetation and associated wetland habitat is assessed as '**Medium**' significance prior to mitigation. The significance of the impact is independent of an extension in the duration of the construction activities and the significance of the impact will remain the same if the construction period is increased.

Extending the duration of construction within the existing Exemption area will not pose an additional risk to wetland vegetation.

#### **Proposed Mitigation Measures**

The following mitigation measure is proposed:

- Limit the extent of vegetation clearing to the authorised footprint.

The proposed mitigation measure aims to reduce the extent of vegetation clearing. The likelihood of wetland habitat loss impact to the adjacent wetland will further be reduced. The residual impact significance is assessed is '**Low**' after Mitigation.

### 5.6.1.4 *Impact Related to Increase of Alien/Pioneer Vegetation in Areas Disturbed by Construction Activities*

#### **Impact Description**

Disturbances to the wetland (HGM ACVB2) on site will provide opportunity for invasion by alien and invasive species. Species such as *Bidens formosa* (*Cosmos*) which are already occurring with a high abundance and cover, within and outside the HGM unit. The additional spread of alien and invasive species into wetland unit AUCVB2 (to the east of the Exemption area) may further reduce the ecological integrity of the wetlands on site. However, the significance of the impact of alien and invasive encroachment due to construction activity will not increase due to the extension of the Exemption period; as the primary driver relates to the extent of soil disturbance in preparation for ashing.

The impact of alien and invasive species encroachment during construction is assessed to be of '**Low**' significance prior to mitigation.

Extending the duration of construction within the existing Exemption area will not pose an additional risk of alien vegetation.

### **Proposed Mitigation Measures**

Mitigation measures to further reduce the impact of alien and invasive species encroachment include the following:

- The extent of vegetation clearing and soil preparation prior to ashing will be limited to the absolute minimum at any given moment during the construction phase. This mitigation measure will also assist erosion control and the rate at which the receiving pollution control facility silts up;
- Control the spread of alien and invasive species from disturbed areas into the neighbouring areas, through the application of an alien and invasive species monitoring programme.

The impact is assessed to be of '**Low**' significance after mitigation.

#### *5.6.1.5 Impact on Residual Wetland Functionality and Associated Ecosystem Goods and Services*

### **Impact Description**

Hydrogeomorphic unit ACVB2 reflects a residual extent of approximately 5 ha. The HGM represents a seasonal and temporary channelled valley bottom system. The loss in wetland habitat, and flow maintenance will result in a decrease in ecosystem services associated with this wetland. However, this wetland unit falls into an E/F PES state and its residual capacity to provide ecological goods and services are largely lost. Moreover, the rehabilitation potential for this wetland unit is virtually sterilised. The upslope hydrological pathways have been lost and the downslope drainage is intercepted by the ash disposal facility and directed into the pollution control system.

The impact significance is assessed as '**Medium**' prior to and after mitigation.

Extending the duration of construction within the existing Exemption area will not pose an additional risk to wetland functionality.

### **Proposed Mitigation Measures**

The current direction of ashing will unavoidably sterilise HGM ACVB2 and the residual ecosystem functions, goods and services will be lost. Functionality related to erosion control, water purification and stormwater attenuation will largely be substituted through the stormwater and pollution control system. However, the actual loss of wetland habitat and associated biodiversity cannot be readily mitigated.

This impact assessment assumes a net loss within the biodiversity functions associated with HGM ACVB2 and the post-mitigation impact significance remain '**Medium**'.

However, a review of the baseline wetland report (Ecotone, 2014) indicates a number of similar HGM units in and around the ash disposal facility. Nearly all of the wetlands reflect

some loss in functionality. An opportunity exists, to regain some wetland goods and services through the rehabilitation of wetland units offsite from the Exemption footprint. The ecological gain associated with the implementation of this mitigation measure may not be justified solely in the context of the residual impact of ashing within the Exemption footprint. However, in the context of the cumulative loss of wetlands associated with the larger extension of the facility, a wetland rehabilitation and management plan is prudent to mitigate the net loss of wetland habitat and particularly biodiversity functions associated with these wetlands.

It is possible to mitigate the net loss of wetland functions associated with the Exemption area through rehabilitation of degraded wetlands around the existing and future ashing facility. The residual significance of this impact can be reduced to be of '**Low**' significance.

### *5.6.2 Impacts identified during Operational Phase*

It has been determined during this assessment that the operational impacts identified during the 2014 baseline study will not be affected by increasing the duration of ashing within the authorised Exemption due to the following reasons:

- (i) all drainage associated with the Exemption area is already intercepted and directed into the pollution control system and
- (ii) the extent of downstream water pollution is mitigated by the existing separation of clean and dirty water. Dirty water that will arise from runoff is directed into the pollution control system

Impacts and associated mitigation measures relating to the operational phase are revised in the following sections with a specific reference to increasing the duration of ashing within the authorised Exemption area.

#### *5.6.2.1 Hydrological Impacts on Downstream Wetlands During Operations*

##### **Impact Description**

Wetland unit ACVB2 drains a catchment of approximately 250 ha. This catchment is almost completely occupied by the existing Ash Facility footprint. The north-eastern portion of this catchment remains open veld but is earmarked for the future expansion of the Ash Facility. The catchment of HGM ACVB2 drains into Tributary 1 which drains into the Wolwespruit, which in turn flows into the Grootdraai Dam. Tributary 1 represents a subcatchment of approximately 480 ha, while the Wolwespruit drains about 10 000 ha at its confluence with the Grootdraai Dam. It follows that the proportional water contribution of the ACVB2 catchment is about 52% that of the Tributary 1 catchment and 2.5% that of the Wolwespruit catchment (at the location where it flows into the Grootdraai Dam).

All the flows from the ACVB2 catchment is intercepted and directed into the pollution control facility, subsequently decreasing the water budget for the downstream watercourses. From

the analyses, the proposal contribution associated with the ACVB2 catchment to the downstream environment is relatively small and insignificant at the location of where the Wolwespruit flows into the Grootdraai Dam. The magnitude of the impact is further reduced due to the poor PES of Wolwespruit.

The hydrological impact on the downstream wetlands during operations, specifically assessed in terms of the Exemption area will be of '**Low**' significance prior to mitigation. Extending the duration of the ashing within the authorised Exemption area will not influence the significance of the impact associated with hydrological changes to the downslope water resources.

#### **Proposed Mitigation Measures**

The hydrological contribution associated with HGM ACVB2 (that fall within the footprint of the Exemption area) will be lost. As a related measure the control of alien and invasive species (particularly wattle and blue gum species) around the pollution control dams will contribute positively to the local water budget. The implementation of such measures is likely to further reduce the residual significance hydrological impact to the downstream environment.

#### *5.6.2.2 Impact on Surface Water Quality During Operations*

##### **Impact Description**

Seepage or leakage of polluted water out of the ash disposal facility into adjacent wetlands is likely to result in a deterioration of water quality within the receiving watercourses. Decreasing water quality within the downslope environment is likely to have a deleterious effect on the biodiversity supported by these wetlands, as well as making the water less fit for use for downstream water users. Downstream water users at a local scale include farmers using the water for livestock watering and irrigation, while further downstream the water enters the Grootdraai Dam and the Vaal River.

The extent of the pre-mitigation impact has conservatively been assessed as '**Medium**' as the pollution control dams are located within the Wolwespruit with no buffer to the downstream drainage system if spillage should occur during larger flood events. Additional factors influencing the extent of water quality deterioration is ash deposition through wind. Wind poses the risk of mobilizing ash dust particles and depositing it into receiving watercourses.

An extension of the duration of the ashing period within the authorised exclusion Exempted area will not influence the significance of downstream wetland impacts related to water quality.

### **Proposed Mitigation Measures**

The extent, duration, magnitude and probability of water pollution through the following would be reduced through the following measures:

- Contaminated runoff will be intercepted and isolated from the downstream drainage; Surface water quality monitoring for sites WSS61, WSS32 and WSS06 (refer to Routine Monitoring Report- GHT 2016) will continue. These monitoring points are located downstream of pollution control dams on the Wolwespruit;
- The continuation of proper management of the dirty / clean water separation system south and east of the Ash Facility is critical to control water pollution along the natural drainage system of the Wolwespruit;
- Effective suppression of dust during operations will further reduce the extent of surface water pollution through wind.

The implementation of effective dirty water separation and containment through the pollution control system and effective dust control in conjunction with surface water monitoring along the Wolwespruit will reduce the residual impact of water quality deterioration to '**Low**' during operation.

## **6 HYDROGEOLOGICAL ASSESSMENT REVIEW**

For the full Hydrogeological Assessment Review report compiled by GCS Pty Ltd, refer to **Annexure C**.

### **6.1 Verify Potential Impacts**

The previous hydrogeological studies conducted during the original exemption application was reviewed together with the site information received from Eskom. Findings were made to determine if SLR Global Environmental Solutions (SLR)'s previously predicted groundwater impacts will change or not due to additional time used to ash over the same footprint (54ha) under the exemption approval area.

### **6.2 Previous predicted groundwater impacts**

#### **6.2.1 Ground Water Levels**

SLR 2014 Groundwater Specialist Study (SLR 2014) noted that even though a dry ashing technique will be used during the operational phase from 2015 onwards for the ash disposal facility, precipitation will collect on top of the ash disposal facility and eventually infiltrate through the ash and liner to the underlying aquifer.

SLR stated that water will likely be stored within the ash disposal facility over time and subsequently increase the 'recharge' within the footprint of the facility which may cause mounding of groundwater. However, this ultimately depends of the volume of water that falls on the facility and the relative permeability of the ash, which were only estimated in the study. This may have the potential to cause a rise in the water table beneath the ash disposal facility and may impact local groundwater flow directions. Notwithstanding, it was considered by SLR unlikely that a significant rise in the water table beneath the ash disposal facility will occur as a direct result of the ash itself. SLR also noted that the use of toe drains, stormwater dams and other surface water impoundments close to the proposed ash disposal facility may lead to local water table rise.

### *6.2.2 Groundwater quality*

The SLR numerical model predictions results suggested that the movement of leachate away from the ash disposal facility as a groundwater plume should take place relatively slowly, with predicted plume extent being generally less than 1 km from the ash disposal facility after 100 years. However, the input concentration for the model was only made as 100 % and the ash material was never characterised by means of geochemical analyses. Geochemical modelling to determine potential contaminants of concern and the final expected water quality emanating from the ash disposal facility has not been undertaken to date.

SLR (2014) concluded that the quality of groundwater beneath the site will most likely deteriorate, since natural groundwater will be mixing with the poorer quality ash leachate (either directly draining from the ash disposal facility or leaking from surface water impoundments). Geochemical data for the ash at Tutuka was not made available for the SLR (2014) assessment, but typical constituents of concern (elements that are elevated above water quality standards) listed by SLR included: arsenic, boron, chromium, molybdenum, antimony, selenium, vanadium and wolfram. In addition, the pH of water was also mentioned to be impacted upon. It was noted however that groundwater quality data indicated that groundwater quality has already been impacted by the existing ash disposal facility.

SLR stated that if contaminated water was impounded at the surface in unlined ponds, there was a risk to both groundwater and surface water resources. SLR reviewed monitoring data and there was an indication that boreholes located near ponds were adversely impacted both in terms of groundwater levels and quality.

### 6.2.3 Summary of Impacts

The cumulative impacts from the ash disposal facility of all three phases (construction, operation and decommissioning) determined by SLR (2014) were summarised as:

- A rise in water table in the vicinity of the site due to increased recharge from stored water within the ash disposal facility and any associated surface water impoundments.
- Deterioration in groundwater quality.

The potential impacts of the proposed ash disposal facility on the local groundwater were also qualitatively assessed by SLR and the nature of the impacts were assessed using a standard significance rating scale. The significance rating for the cumulative impacts from the ash disposal facility with and without mitigation measures were determined by SLR as medium to low respectively in terms of deterioration of groundwater quality due to leachate from ash disposal facility.

### 6.3 Verification of previous groundwater impacts

The previous hydrogeological study conducted by SLR (2014) during the original exemption application was reviewed together with the site information received in order to determine if SLR's previously predicted groundwater impacts will change or not due to additional time used to ash over the same footprint (54ha) under the exemption approval area.

Regarding groundwater levels, SLR concluded that there was a risk that a rise in water table in the vicinity of the site due to increased recharge from stored water within the ash disposal facility and any associated surface water impoundments could occur. A slight rise in water table depth were noted from monitoring data around the ash disposal facility and were determined by GHT Consulting Scientists to be potentially due to historic influences of brine water irrigation and/or recharge occurring through the top. Although the rise in water levels were extremely slow, it was recommended by GHT Consulting Scientists to further investigate as this could potentially be as a result of the ash disposal facility slowly becoming more saturated.

During the operational, decommissioning and post closure phases the main impact on groundwater that may result from the additional time used to ash over the same footprint under the exemption approval area is the contamination of the groundwater as a result of seepage from the ash disposal facility. Based on the results from the previous SLR (2014) study and on-site monitoring the following can be concluded related to groundwater quality:

- SLR (2014) found from previous monitoring data that the groundwater of the sites on the current ash disposal facility shows signs of severe contamination.



- SLR (2014) noted that the deteriorating qualities of the deep piezometers from the current ash disposal facility was reported to be impacting on the shallow aquifer directly below the current ash disposal facility.
- Severe contamination reported downstream of the current ash disposal facility were reported by SLR (2014) to indicate that contaminant migration has occurred away from the current ash disposal facility and detrimental impacts on the groundwater quality have resulted primarily towards the east and south-east.
- The hydrocensus conducted by SLR (2014) included the sampling of three groundwater samples and the results indicated that chromium, iron, manganese and selenium were observed at concentrations above the SANS 241 (2011) limits. The electrical conductivity, total dissolved solids, chloride and sulphate concentrations were all significantly elevated above the most stringent water quality limits in one sample.
- The majority of groundwater monitoring sites on the ash stack shows signs of severe contamination.
- The deteriorating qualities of the deep piezometers indicated, according to GHT Consulting Scientists, that the ash stack is impacting on the shallow aquifer directly below the ash stack. The water quality monitoring results indicated that contaminant migration has occurred away from the ash stack and detrimental impacts on the groundwater quality have resulted primarily towards the east and south-east, approximately 30 to 800 metres downstream of the ash stack at that period.
- It was concluded by GHT Scientific Consultants that the impact on the groundwater sites downstream from the ash stack were likely attributed to the dams and channels transferring dirty water from the ash stack than solely the seepage from the ash stack. Contaminations were reported for monitoring boreholes located approximately one kilometre downstream from the dirty/clean water dams.
- Contaminants of concern reported from monitoring data were fluoride, magnesium, sodium, chloride, and sulphate. Elevated electrical conductivity was also noted.
- Surface water samples of the stream south of the ash disposal facility, the dirty water dams and the clean water dams showed severe signs of contaminations with sulphate concentrations from the dirty water dams ranging between 621 mg/L and 11 083.0 mg/L and electrical conductivity ranging between 299 mS/m and 4 222 mS/m.
- Chemical constituents analysed during site monitoring do not include all contaminants of concern identified from groundwater case studies, conducted in South Africa as well as internationally, that may potentially be present in leachate emanating from similar ash disposal facilities.
- No geochemical assessment has been conducted during the SLR (2014) assessment and no geochemical data were received from the client in order to identify all the contaminants of concern that may have an impact on groundwater quality.

## 7 THE RESULTS OF MONITORING PROGRAMMES

Eskom Tutuka Power Station (Tutuka), applied for a 4-year Exemption from installing the required liner (a Class C liner), as a means to allow station ashing operations to continue while the required designs of the Class C liner were being developed, and to allow its installation. The station was granted the 4-year Exemption on 5 May 2016, and it had the following conditions that Tutuka is expected to comply with.

1. 1 The permanent ash disposal facility will be lined as per Environmental Authorisation dated 19 October 2015, after four (4) years of the issuance of this exemption, with a view to minimise seepage of poor-quality leachate into the groundwater resources;
2. The Holder of EA must compile and submit annual progress reports annually on the status of the engineering drawings;
3. The ash disposal facility, pollution control dams, drainage trenches or any effluent storage facility must not be constructed on geological features such as lineaments, dykes, fault zones or shallow water table;
4. A groundwater monitoring programme in terms of quality and quantity must be developed and implemented which will include monitoring of boreholes up gradient and down gradient of the proposed ash disposal facility and be submitted for approval before disposal of ash;
5. A monitoring programme which defines the frequency of measurements, parameters to be monitored as well as database and reporting must be developed;
6. Groundwater levels and quality must be monitored on a two-month basis in order to quantify ongoing impact and provide early warnings of any problems;
7. Additional groundwater monitoring boreholes must be incorporated into the existing monitoring programme and must be sited and drilled to a depth that penetrates the whole system for both shallow and deep groundwater;
8. The shallow aquifer zone must be ceased and sealed off in the deeper boreholes to minimise the risk of cross contamination. A few of the monitoring boreholes must be installed in the shallow aquifer as an early detection system;
9. If all parameters after being monitored for a period of two years or less show an increasing trend, the groundwater quality monitoring frequency must be changed from bimonthly to monthly;
10. Emergency actions plans in case of groundwater pollution from the ash disposal facility and pipe leakages must be adhered to in order to protect groundwater quality from degradation;
11. Abstraction from boreholes close to the ash disposal site must be avoided due to the fact that the water quality is unsuitable for human consumption.

12. The licence holder must maintain the structural integrity of the ash disposal facility to prevent lipping and erosion.
13. Any subsided surface adjacent to the ash disposal facility must be rehabilitated to minimise ingress of surface water into the ash disposal facility. Massive subsides must be reported to the council of Geoscience immediately.
14. The site should be capped effectively to minimise ponding and runoff should be directed away from the ash disposal facility.

GCS Water and Environment (Pty) Ltd. (GCS) was contracted by Eskom to conduct an independent Environmental Performance Assessment (EPA) Audit for the Tutuka Power Station Ash Disposal Facility as part of the Part 2 Exemption amendment application process to the Exemption issued, in terms of Regulation 31 and 32 of GN 326. The EPA audit was carried out against all conditions included in the Exemption approval of 05 May 2016.

A one (1) day site visit was undertaken at the Tutuka Power Station on 21 May 2019. The site visit was initiated with a project kick-off meeting during which GCS met with, Tutuka's Environmental Officer (EO) for this project. Following the kick-off meeting, a comprehensive review of the documentation and associated checklists was undertaken. This assessment monitored compliance in terms of document control, systems and procedures. Following the checklist audit and documentation review. Accordingly, the following activities were undertaken as part of the EPA Audit:

- Assessment and comparison of the current site activities with those described in the Exemption approval;
- Comparison of environmental mitigation measures implemented on site to those required and committed to in terms of the exemption in order to assess whether these comply with the management objectives committed to in the Exemption approval;
- Assessment of monitoring requirements to current monitoring practices;
- Assessment of relevant documentation pertaining to various compliance aspects; and
- Identification of current activities and facilities at the Tutuka Power Station ADF, which are not specifically included in the Exemption approval.

A detailed description of all the audit findings, the ranking and scoring together with observations and recommendations are provided for in the Audit Report attached as **Annexure D.**

A summary of the critical and moderate findings made during the EPA is presented in the section that follow.

## **7.1 Monitoring Frequency**

### Condition 6 of the Exemption approval

Groundwater levels and quality is monitored on a quarterly basis at Tutuka Power station. The existing Tutuka monitoring protocol and also the conditions of the WUL stipulates that the monitoring should be done on a quarterly basis. It is difficult to conduct the monitoring on a two-monthly frequency as the acceptable period from DWS for groundwater monitoring is quarterly.

It is recommended that Eskom consult with the DEA in order to motivate for monitoring at the station to be undertaken on a quarterly basis as with the conditions of the WUL.

From the auditing findings, it can be concluded that Tutuka is 96% compliant with their conditions of the exemption approval. Through the on-site meetings and observations, it is clear that Tutuka is aware of all the areas of concern.

## 8 PUBLIC PARTICIPATION

### 8.1 Purpose of Public Participation

GCS were appointed by Eskom (Pty) Ltd to undertake the Part 2 Exemption amendment application process to the Exemption issued, in terms of Regulation 31 and 32 of GN 326; and as part of the application process, conduct the associated public participation process in terms of Chapter 6 of the EIA Regulations, 2014, as amended.

The Public Participation Process (PPP) is a requirement of the environmental authorisation process and ensures that all relevant I&APs are consulted and involved. The process ensures that all stakeholders have an opportunity to raise their comments as part of an open and transparent process, which in turn ensures for a complete comprehensive environmental study.

The purpose of PPP and the engagement process is to:

- Introduce the proposed extension project;
- Explain the Amendment Application and PP processes to be undertaken;
- Determine and record public issues and concerns;
- Provide opportunities for public input and gathering of local knowledge;
- Inform a broad range of stakeholders about the project and the environmental process to be followed;
- Establish lines of communication between stakeholders and the project team; and
- Identify all the significant issues in the project.

### 8.2 I&APs Consultation

The sections that follow detail the PPP to be undertaken for the project. The PPP was undertaken in terms of the NEMA EIA Regulations (2014). The PPP was initiated when the draft Motivation Report was placed for public review and comments.

#### 8.2.1 Site Notices

A2 laminated site notices have been placed on and around the project area as indicated in the map in Figure 8.1

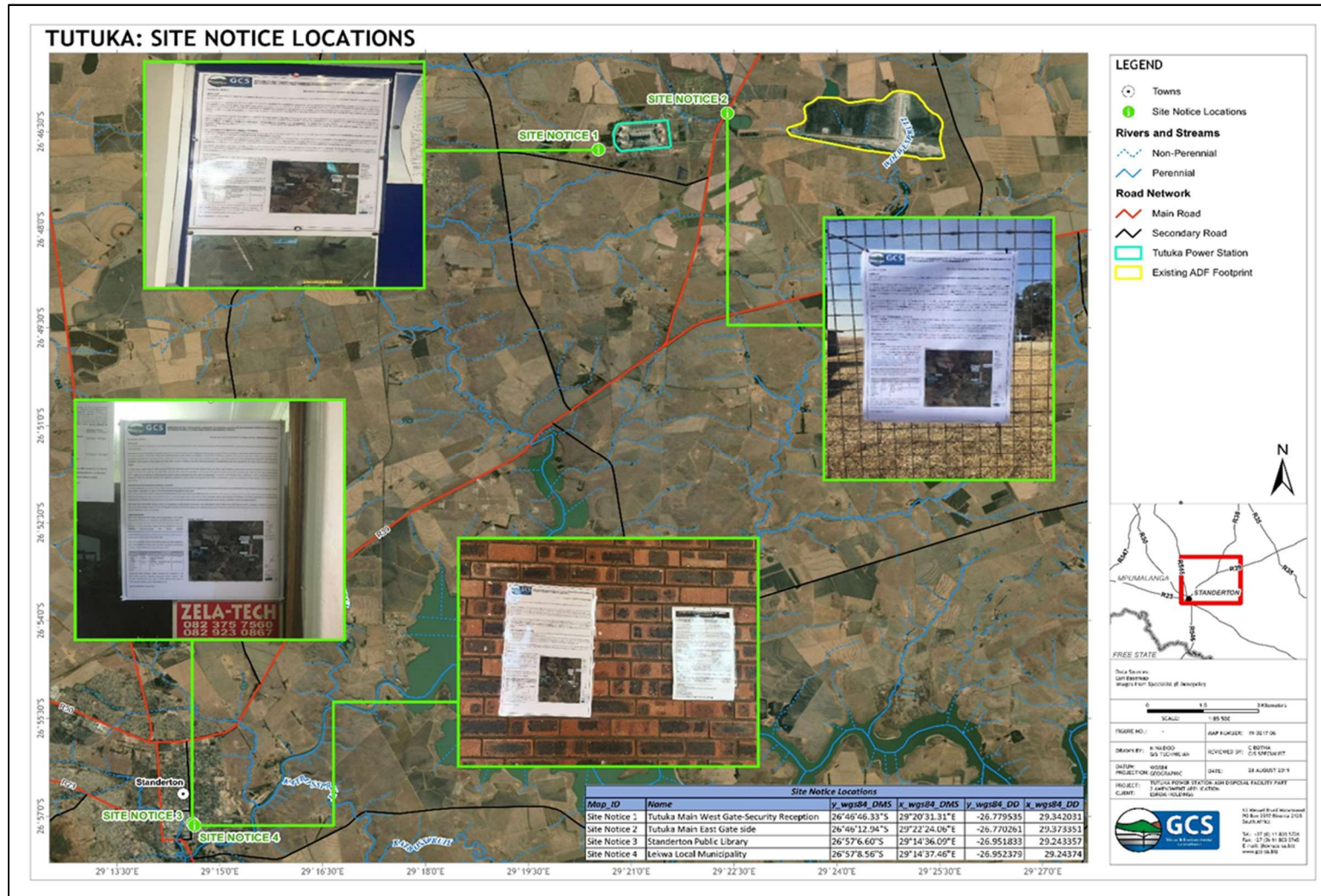


Figure 8.1: Map indicating placement of site notices

### 8.2.2 Background Information Document (BID)

A Background Information Document (BID) was provided to the stakeholders/Interested and Affected Parties (I&APs) and will contain the basic facts about the proposed project. The BID will include as a minimum, the following information:

- A project description;
- A locality map;
- An outline of the environmental process being followed;
- The details of the public consultation process; and
- The contact details of the appointed EAP.

BIDs was also be distributed by email, fax, post to all registered stakeholders/I&APs in the existing database from the recent ADF and Exemption processes, and by placement in a public venue for access to stakeholders/I&APs that have not registered as I&APs yet. The BID was produced in English only.

### 8.2.3 Newspaper Advertisements

An advertisement were placed in two (2) different newspapers used previously for Tutuka applications. The newspapers in which the advertisements were placed are:

- The Highveld tribute, and
- The Cosmos News.

### 8.2.4 Public Review

For this project, the draft Report was made available for public review and comments from 30 July 2019 until 29 August 2019, on the GCS Website (<http://www.gcs-sa.biz>) and at the Eskom website ([http://www.eskom.co.za/OurCompany/SustainableDevelopment/EnvironmentalImpactAssessments/Pages/Environment\\_Impact\\_Assessments.aspx](http://www.eskom.co.za/OurCompany/SustainableDevelopment/EnvironmentalImpactAssessments/Pages/Environment_Impact_Assessments.aspx)).

The Draft report (hard copy) was also be made available at the venues below for review and comments during the period from Tuesday, 30 July 2019 to Thursday, 29 August 2019:

Venue	Working Hours	Street Address	Contact No.
Standerton Public Library	08:30 - 16:30	Cnr Beyers Naude and Mbonani Mayisela Street	017 712 9678
Tutuka Power Station Reception Area	07:00 - 16:00	Between Standerton and Bethal Road (after R 38)	017 749 9111

### 8.2.5 Issues and Response Register (IRR)

To date, no issues, concerns or comments on the project have been received by the EAP, as such the IRR currently has no information contained therein.

## 9 CONCLUSION

Eskom Tutuka Power Station (Tutuka) undertook a Part 1 amendment process in November 2018, which was rejected by the DEA in a letter dated 09 January 2019; and required that a Part 2 amendment process in terms of Regulation 31 and 32 of GN 326 be undertaken instead for the Exemption approval issued on 5 May 2016 (which is the subject of this application). In addition to the Part 2 Exemption amendment application process, Tutuka was requested to undertake the following:

- Public Participation Process report conducted in terms chapter 6 of the EIA Regulations, 2014, as amended;
- Confirmation from all specialists that conducted the studies that the proposed amendment will not have additional impacts on the environment; and
- The results of monitoring programmes requested to be developed in the Exemption issued on 05 May 2016.

GCS Water and Environment (Pty) Ltd (GCS) and Ecotone Freshwater Consultants CC assessed the previous specialist reports produced during the exemption application in order to confirm if the 2014 findings will change due to additional time used to ash over the same footprint (54ha) under the exemption approval, and have made the following conclusions:

### **Specialist Wetland Impact Assessment Review**

An extension of the duration of Exemption period to cover the residual area of 11 ha does not influence the residual significance of any of the anticipated impacts identified during the 2014 assessment. The affected wetlands drain a portion of the Wolwespruit catchment that is entirely intercepted by the pollution control of the existing facility. Residual functions such as water purification, flood attenuation and erosion control are thus represented within the pollution control system. Conversely, a net loss in downstream flow augmentation and biodiversity functions have already occurred.

### **Hydrogeological Impact Assessment Review**

The cumulative impacts from the ash disposal facility of all three phases (construction, operation and decommissioning) determined by SLR (2014) were summarised as:

- A rise in water table in the vicinity of the site due to increased recharge from stored water within the ash disposal facility and any associated surface water impoundments.
- Deterioration in groundwater quality.

It can be concluded that, an extension in the duration of ashing within the residual Exemption period to cover the residual area of 11 ha will not change the groundwater impacts



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determined by SLR (2014), the 2014 identified impacts will still remain in terms of groundwater levels and quality.

An independent Environmental Performance Assessment (EPA) Audit for the Tutuka Power Station Ash Disposal Facility as part of the Part 2 Exemption amendment application process to the Exemption issued, in terms of Regulation 31 and 32 of GN 326. The EPA audit was carried out against all conditions included in the Exemption approval of 05 May 2016.

Currently the overall compliance with the Exemption approval is noteworthy. Overall there was one (1) incident of minor non-compliance, and zero (0) incidents of major non-compliance observed for the audit period. Tutuka is compliant with most of the conditions of the Exemption approval that apply to the current status of the project. There were no incidents of Major Non-compliances observed. This is a verification that Tutuka takes their compliance to the Exemption approval seriously and the Auditor is satisfied that the conditions of the Exemption approval are being complied with in full. From the auditing findings, it can be concluded that Tutuka is 96% compliant with their conditions. Through the on-site meetings and observations, it is clear that Tutuka is aware of all the areas of concern.

Overall it can be concluded that extending the duration of the Exemption period, resulting in use of the residual 11ha, will not have additional impacts that those that were predicted in the 2014 specialist study. It is crucial for Tutuka to ensure that all management and mitigation measures are implemented and adhered to in order to comply with to ensure minimum harm to the environment. The impacts identified for the construction operation phase are mostly medium in nature and with the proper implementation of the mitigation measures proposed; these impacts can be further reduced to avoid long term damage to the biological and social environment.