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Attention: Mr S. (Bobby) Peek
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INDEPENDENT PEER REVIEW OF INTEGRATED WATER USE LICENSE APPLICATION (“IWULA”) AND INTEGRATED WATER AND WASTE MANAGEMENT PLAN (“IWWMP”) DATED NOVEMBER 2016, PREPARED BY AURECON FOR ACWA POWER KHANYISA IPP PROJECT, EMALAHLENI, MPUMALANGA PROVINCE

Dear Bobby

Our discussions regarding the above, and your formal request in this respect dated 3 December 2014, refer. As discussed, it is our understanding that Carin Bosman from CBSS is to conduct a legal and technical peer review of the IWULA and IWWMP, dated November 2016, prepared by Aurecon for the ACWA Power Khanyisa IPP Project, eMalahleni, Mpumalanga Province.

The **purpose** of this Review is to establish whether –

- a) the IWULA and IWWMP adequately addresses the substantive requirements of the NWA (including its regulations) that relate to prevention of water pollution; judicious water management; and authorisation of the water uses that will take place at Khanyisa;
- b) the IWWMP adequately addresses the requirements of the DWS IWULA and IWWMP Guidelines;¹
- c) the IWWMP contains a proposed IWWMP Action Plan that is practical and implementable; and
- d) the IWWMP is suitable to be used as supporting documentation for a WULA.

This letter contains the outcome of the peer review, and addresses the following aspects:

- The methodology followed in conducting the review, outlining Key Review Criteria, specific Review Questions, and overall Grading of the Report;
- The summarised outcome of the review against the Key Review Criteria;
- General comments: Legislative, substantive and procedural shortcomings;
- Overall grading of the Report; and
- Conclusions and recommendation regarding the suitability of the Report for submission to the authorities, and regarding the suitability of the IWWMP Action Plan.

¹ DWA, 2010: Operational Guideline: *Integrated Water and Waste Management Plan for the preparation of the Water Quality Management Technical Document to support the Application for Licences for Mining and Industries in Terms of the Requirements of the National Water Act, 1998 (Act 36 of 1998)* (“DWA IWWMP Guidelines”)



1. REVIEW METHODOLOGY

In order to ensure that the review of any environmental report or planning instrument is conducted in an objective manner, it is important that a standardised **methodology** be followed. The methodology followed in this review of the Khanyisa IWULA & IWWMP is based on the Standard Review Form for Environmental Reports as developed by Bryony Walmsley for the Southern African Institute for Environmental Assessment (“SAIEA”).² The original version of the form is included in the Department of Environmental Affairs (“DEA”) Guideline Series No 13 for Integrated Environmental Management (“IEM”).³

This Standard Review Form allows the reviewer to assess the report in a systematic and structured way both in terms of procedural and substantive content. Each section of the Review Form contains a number of standardised **Key Review Criteria**. Specific **Review Questions** are formulated, based on the requirements in the legislation and relevant guidelines, which are answered by the reviewer, making use of objective evidence gathered during the review, in order to determine whether the Key Review Criteria are being met.

The following rating system is used in the Review Form:

- 1) For each review question, the reviewer considers whether the question is relevant to the project. If it is relevant, it is marked “**Y**” (yes), and if not, it is marked “**N**” (no).
- 2) If the review question is relevant, the reviewer evaluates the relevant sections of the Report and specialist studies (if applicable) and establishes whether the information provided is:
 - a) **Complete or comprehensive (“C”):**
 - ⇒ All information required for decision-making and/or implementation is available. No additional information is required or necessary, even though more information might exist.
 - b) **Acceptable or adequate (“A”):**
 - ⇒ The information presented is incomplete, but the omissions do not prevent the decision-making process or implementation from continuing.
 - c) **Inadequate (“I”):**
 - ⇒ The information presented contains major omissions. Additional information is necessary before the decision-making process or implementation can proceed.

For this Review, the **Key Review Criteria** in the Standard Review Form were further developed into a number of **Review Questions** to reflect the requirements for an IWULA & IWWMP as outlined in the legislation and the relevant DWS Guidelines. On the basis of the outcome of the Review, the Standardised Review Form provides for an **Overall Grading** of the Report, which could be “Excellent”, “Good”, “Satisfactory”, “Inadequate”, or “Poor”.

2. SUMMARY OUTCOME OF THE REVIEW OF THE KHANYISA IWULA & IWWMP

On the basis of the methodology described above, a detailed review was conducted on the Khanyisa IWWMP & WULA against the Key Review Criteria and the Review Questions. The outcome of this review can be summarised as follows:

² Southern African Institute for Environmental Assessment, 2002: Standard Review Form for EIA’s

³ Department of Environmental Affairs (“DEA”), 2004. Review in Environmental Impact Assessment, Integrated Environmental Management Information Series 13



Key Review Question	C/A/I	Comments
1) Does the Report contain a non-technical Executive Summary?	A	The Report does contain a non-technical executive summary. The section entitled “Synopsis” outlines the purpose of the report, and provides a summary of the Report-structure. The “Synopsis” section however does not describe the activity, the environment, the main issues, proposed mitigation measures, or the KPAs for any action plans.
2) Does the Report contain a description of its structure, of the approach and methodology followed in its compilation, and does it describe and incorporate the findings of specialist studies in an objective manner that is comprehensible to the non-specialist?	I	<p>The Report was compiled by Aurecon and is signed by the persons who compiled it. Only one specialist study, a 2011 geohydrological study, was included in an Appendix in the Report, and was signed by the specialists.</p> <p>The Report does not contain a Terms of Reference and/or Scope for the IWWMP. The Report also does not explain the methodology used in its development, and does not present the information and analysis in a manner that is comprehensible to the non-specialist. No indication of the areas expected to be significantly affected by the various aspects of the project were provided. Suitable maps were not included into the text of the Report, but are located elsewhere, and the quality of information (or lack of information) are not discussed. Data and knowledge gaps were not identified and addressed. The Reference section of the Report is also scant, and does not contain references to all sources of information used from external sources.</p> <p>The use of extremely dated information can be regarded as misleading, and that information is not presented in an objective manner.</p>
3) Does the Report properly describe the socio-economic context and bio-physical environmental baseline?	I	<p>The Report provides a description of the environmental setting and socio-economic profile in par 4, however, this is superficial, and based on outdated information:</p> <ul style="list-style-type: none"> • The Report contains a superficial description of the regional administrative setting (par 4.9.1) and discusses demographic data that are more than 10 years old (par 4.9.2). The Report refers to “Economic Status” in par 4.9.5, but 2009 data were used, and it does not address all the relevant economic aspects. Although par 4.9.5.2 discusses employment figures, and “access to basic services” in par 4.9.3, this data is older than 10 years. Community facilities and amenities, as well as current skill levels or lack of skills, are not discussed. The Report refers to “Archaeology” in par 4.8, but contains no reference to the cultural or aesthetic components of the environment likely to be affected by the project. • The description of climatic conditions in par 4.1 is inadequate, as climatic data older than 25 years were used, which implies that floodlines and expected maximum precipitation volumes are not correctly determined. No description of air quality is contained in the report, which is necessary if water is used for dust control. • The description of the surface water environment is seriously lacking, and based on unsubstantiated assumptions, especially relating to wetlands: an unsubstantiated assumption was made that the wetland occurring in the area is as a result of “seepage” (par 4.6), in spite of the fact that this part of the Mpumalanga Highveld is characterised by a number of endorheic pans. No wetland delineation was conducted. • Although the report refers to “Hydrology” in par 4.6.1, it is superficial, and there is no description of flows, flood lines, run-off, springs, wetlands and dams, or the location of other water users in the vicinity of the Project Area. The description of geohydrological conditions in par 4.5 is also inadequate, and based on outdated data (a 2011 study). • The baseline description contains no information on current water management strategies and initiatives. Surface water quality data used are almost 10 years old, and groundwater quality data was collected in 2011. This data is compared against outdated guidelines and standards. In addition, the term “poor water quality”, used in par 4.7.3, has no basis in the science of water quality management. • The Report refers to an undated soil study in par 4.4, which cannot be regarded as adequate. The agricultural or rehabilitation potential of the soil types are not discussed. • There is no Biodiversity Assessment, and the relevant Provincial Biodiversity Plans were not consulted.



Key Review Question	C/A/I	Comments
4) Does the Report properly describe the properties, rights and ownership status at the proposed development?	I	Although par 1.4 lists the properties that are associated with the proposed development, it does not indicate the ownership of these properties, or the Title Deed numbers of these properties, and no indication is given of the current land uses on these properties. The Report also does not address settlement patterns and Regional land use planning.
5) Does the Report properly describe the proposed development, including all activities, institutional arrangements and infrastructure that could have an effect on water management?	I	Although the Report describes the activity processes and infrastructure, and although an Organisational Structure is attached as Appendix J1, there is no discussion or indication on how environmental management responsibilities on the Project Site will be handled, what “environmental awareness” (par 5.3.2) will entail, or whether environmental training and skills development will actually be incorporated into the business plan (par 5.3.3). No detail is provided on the implementation of any EMS. The Report gives no indication of the number of job opportunities that will be created, but seems to suppose that this will be “significant”. It however does not explain who and how many people with which skill sets will be employed from which communities. No discussion on employee transportation, accommodation, support services, recreation facilities, skills breakdown, BEE, stakeholder communication, etc., are provided. The Report also does not describe the potential income, etc. generated as a result of the project.
6) Does the Report properly describe the arrangements as it relates to water supply, water use and consumption, run-off and wastewater management, and water balances?	I	The Report does describe its source of water supply, but gives no indication as to which other water users it may be in competition for this source of water supply. Although par 5.2.1 refers to a “water balance”, the figure contained in Appendix F does not represent an environmental water balance, but an internal water flow diagram. The legend of this “water balance” indicates the discharge of “dirty water” to the environment. The determination of run-off volumes and volumes of contaminated water that requires containment is questionable, as it relies on 25 year old climatic data. This is probably the reason why no indication is given in par 5.2.2 of the volumes of expected contaminated runoff.
7) Does the Report adequately address relevant water-related legislation, requirements for authorisation, regulations, and guidelines?	I	The Report does not properly identify the activities that can be regarded as “water uses” as defined in section 21 of the NWA. For example, it identifies section 21(c) (“impeding or diverting the flow of water in a watercourse”) as a water use associated with its activities, but gives no indication as to which water course will be so “impeded” or “diverted”, and for what purpose this activity is necessary – this also contradicts the statement in par 4.6.1, which states that “no water courses will be disturbed or altered by this project”. This can be regarded as false or misleading information. The Report further does not contain proposed regulatory criteria for surface and groundwater quality.
8) Does the Report properly identify impacts and risks associated with the activity to the water resource, including water users, are the significance of these determined, and is a quantification of significant risks conducted based on adequate information and a consistent scientific assessment methodology?	I	The Report contains a “Risk Assessment” in par 5.5. However, a “risk assessment” is “conducted”, without any form of risk identification, and the “key issues” identified, bears little relation to actual threats to the surface and groundwater resource, or other users of the water resource. Potential impacts as a result of stream crossings, as well as impacts on the aquatic environment and wetlands, are also not addressed. Although the results of the assessment is presented in Table 31, the magnitude, extent and duration of the impacts are not discussed. The significance of the impacts have therefore not been properly determined. No quantification of significant risks is undertaken, and due to the poor quality of the baseline data used, the “risk assessment” as a whole is inadequate, and cannot be regarded scientifically consistent and robust. Par 5.8, which is entitled “Assessment of Level and Confidence in Information” does not identify these critical information gaps and the poor data quality.
9) Does the Report properly identify appropriate management measures to address significant risks, and were alternative management measures considered and evaluated?	I	Although mitigation measures are proposed in Table 34 to address some potential impacts on surface and groundwater resources, these cannot be evaluated for effectiveness, due to the poor quality of the baseline data used, and the lack of a proper and scientifically robust risk identification and assessment process. The Report contains no proposed mitigation measures to prevent impacts on wetlands and the aquatic environment. In addition, the only “mitigation measure” proposed to prevent the potential of groundwater pollution is “monitoring”. Monitoring is not a mitigation measure, but a tool to determine if mitigation is adequate and successful. There are no alternative management measures discussed for any of the potential impacts.



Key Review Question	C/A/I	Comments
10) Does the Report include an appropriate monitoring programme to measure impacts/risks and implementation of management and mitigation measures, including water quantity, water quality, and bio-monitoring, with verifiable locations, variables and frequencies for monitoring?	A	The Report describes “monitoring and control” in par 6.8. However, as indicated above, not all impacts were identified, and no mitigation measures were proposed for some impacts, and once these additional impacts have been properly identified and quantified, and mitigation measures proposed, the monitoring programme should be amended to measure the effectiveness of the additional mitigation measures.
11) Does the Report contain a practical and implementable IWWMP Action Plan, that focusses on the most important issues, associates specific objectives or KPAs with identified management measures, setting out tasks, responsibilities, timeframes, monitoring and review periods; and is the development of this IWWMP Action Plan properly described, indicating how the formulation of objectives considered inputs from stakeholders and the public?	I	<p>The Report does not contain a water and waste management philosophy which recognises the inter-relationship between surface water, process water and groundwater and which provides for the broader guidelines in which water and waste will be managed.</p> <p>“Performance objectives” are outlined in par 6.4 for the key performance areas, and it appears that Table 34 contains the IWWMP action plan. However, the development of the action plan is not described, and the Report does not describe how the objectives were formulated.</p> <p>In addition, the action plan is incomplete, and does not contain timeframes, or monitoring of implementation.</p> <p>As indicated above, due to the poor quality of baseline data used, and the lack of a proper risk assessment, it is not possible to determine if the proposed management measures will be adequate to address the potential impacts on water resources, and on the users of water resources.</p>
12) Does the Report discuss the legal implications of the implementation of the IWWMP Action Plan, and, if applicable, has the execution of the WULA process been described, and the information requirements of section 27 of the NWA been appropriately addressed?	I	<p>Legal implications of the implementation of the IWWMP Action Plan, have not been addressed.</p> <p>The execution of the water use authorisation process has not been described, and the information requirements of section 27 of the NWA have not been appropriately addressed.</p>
13) Does the Report draw an overall conclusion regarding positive and negative aspects and make relevant recommendations, in particular regarding proposed license conditions?	I	The IWWMP Report does not draw an overall conclusion regarding positive and negative aspects, and does not make relevant recommendations. It does however propose some licence conditions.
14) Does the IWWMP Report adequately address the requirements of the DWS IWWMP and WULA Guidelines?	I	On the basis of the review of the IWWMP Report, it is concluded that it does not adequately address the requirements of the DWA IWWMP and WULA Guidelines

On the basis of this review, it can be stated that the document submitted as an IWWMP for Khanyisa, does not comply with the procedural and substantive requirements for IWWMPs and WULAs as outlined by the DWA. A more detailed evaluation can be provide upon request.



3. OVERALL GRADING OF THE REPORT

The overall grading of the IWULA Report for Khanyisa is as follows:

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|-------------------------------------|---|
| <input type="checkbox"/> | Excellent: The Report contains everything required for the implementation of future management measures and any decision-making by authorities. There are no gaps. |
| <input type="checkbox"/> | Good: The Report contains most of the information required as far as it is relevant in the particular circumstances of the project; any gaps are relatively minor, and it can be used for the implementation of future management measures and any decision-making by authorities.. |
| <input type="checkbox"/> | Satisfactory: The information presented is not complete; there are significant omissions, but in the context of the project, these are not so great as to prevent the implementation of future management measures and any decision-making by authorities. |
| <input type="checkbox"/> | Inadequate: Some of the information has been provided, but there are major omissions; in the context of the project these must be addressed before the document can be submitted to the authorities or used for the implementation of proposed management measures. |
| <input checked="" type="checkbox"/> | Poor: <i>The information required has not been provided or is far from complete and, in the context of the proposed project, the omissions must be addressed before the document can be submitted to the authorities or used for the implementation of proposed management measures.</i> |

The overall grading of the IWWMP Report for Khanyisa is “poor”, as baseline information is outdated incomplete, the description of the socio-economic and bio-physical environment is insufficient, and it does not properly identify the potential impacts associated with the activity. As a result, it is not possible to determine if mitigation and management measures proposed in the document will be adequate to address potential impacts on water resources and on water users.

4. CONCLUSION AND RECOMMENDATION

It can be concluded that the Khanyisa IWULA does not adequately address the legislative and substantive requirements of the NWA (including its regulations) relating to the prevention of water pollution, judicious water management and authorisation of the water uses associated with the proposed activities. The critical flaws in this IWULA are that it does not appropriately describe the socio-economic and bio-physical environment in which the activity is to be undertaken. This leads to the failure of the report in its entirety as a decision-support document.

These oversights are significant enough in the context of water use authorisation requirements to support a recommendation that adequate grounds for a successful legal challenge may very likely exist, should a WUL be issued based on this WULA. If these gaps are not addressed, it will not be possible to implement proper water governance and management at Khanyisa, which could carry a significant risk to the local community.



I trust that this addresses your request for a peer review of these documents. Please do not hesitate to contact us should there be any further information or detail required regarding this matter.

Yours in Sustainability

Carin Bosman

Director: Carin Bosman Sustainable Solutions cc