



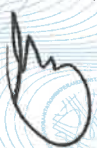
water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Private Bag X313, PRETORIA, 0001, 185 Francis Baard Street, Sedibeng Building, Pretoria
Tel: 012 336 7500 Fax: 021 323 4472/012 326 2715

LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) (THE ACT)

I, **Mr Moses Sipho Skosana** in my capacity as Chief Director: Water Use Authorisation Management in the Department of Water and Sanitation and acting under the powers delegated to me by the Minister of Water and Sanitation, hereby authorises the following water use in respect of this licence.



Serial Number : 4716350112025755234
Chief Director: Water Use Authorisation Management
Date: Aug 30 2024 11:02AM

LICENCE NO: 04/B20F/CGI/1836

FILE NO: 27/2/2/B620/53/2

WUA NO: WU27861

Licensee: Eskom Holdings SOC Ltd

Postal Address: Private Bag X 7297
Witbank
1035

Physical Address: Kusile Power Station
R545 Kendal/Balmoral Road,
Haartebeesfontein Farm **B 16108**

1035

1. Water Uses authorised by this licence

Table 1: Summary of Authorised water use activities.

1.1	Section 21(b) of the Act	Storing water, subject to the conditions set out in Appendices I and II.
1.2	Section 21(c) and (i) of the Act	Impeding or diverting the flow of water in a watercourse; subject to the conditions set out in Appendices I and III.
1.3	Section 21(g) of the Act	Disposing of waste in a manner which may detrimentally impact on a water resource, subject to the conditions as set out in Appendices I and IV.

2. Property (ies) in respect of which the water use licence is issued

Table 2: Property details where the water use(s) will take place

Property description	Title Deed number	Owner
Remaining extent of Portion 1 of the farm Hartbeesfontein 537	T106356/07	Eskom Holdings
Portion 4 of the farm Hartbeesfontein 537	T106356/07	Eskom Holdings
Portion 7 of the farm Hartbeesfontein 537	T106356/07	Eskom Holdings
Remaining extent of portion 7 (portion of portion 3) of the farm Klipfontein 566	T33388807	Eskom Holdings
Portion 3 Remaining extent of the farm Klipfontein 566	T121953/2007	Eskom Holdings
Remaining Extent of portion 11 (portion of portion 3) of the farm Klipfontein 566	T000006764/2008	Eskom Holdings
Portion 25 (Portion of portion 7) of the farm Klipfontein 566	T000006764/2008	Eskom Holdings
Portion 3 of the farm Hartbeestfontein 537	T134593/07	Eskom Holdings

Property description	Title Deed number	Owner
Portion 6 of the farm Hartbeestfontein 537	T134593/07	Eskom Holdings

3. Licence and Review Period

- 3.1 This licence is valid for a period of **Twenty (20)** year(s) from the date of issuance and it may be reviewed at intervals of not more than five (5) years.
- 3.2 On review of the licence, a Responsible Authority may amend any condition of the licence, other than the period of validity thereof.
- 3.3 This licence is superseding the following licences:
- 3.3.1 04/B20F/BCFGIJ/41 dated 01/04/2011
- 3.3.2 04/B20F/CGI/1836 dated 20/06/2017
- 3.3.3 04/B20F/CI/2235 dated 13/08/2013
- 3.3.4 04/B20F/BCEGI/4407 dated 26/02/2016
- 3.3.5 12/2/B202/33 dated 12/12/2017
- 3.3.6 24088274 dated 17/07/2009

4. Definitions

Any terms, words and expressions as defined in the National Water Act, 1998 (Act 36 of 1998) shall bear the same meaning when used in this licence.

4.1 The following definitions are of relevance, but not exclusive, to this licence

Act	National Water Act, 1998 (Act 36 of 1998)
Buffer Zone	A scientifically determined area where water use activities are excluded.
Delegated Authority	The person that has been delegated certain functions of the Act
Department	The Department of Water and Sanitation

Commencement date	The date on which water use starts.
Days	Calendar days.
Minister	Minister of the Department of Water and Sanitation.
Provincial Head	Head of Provincial Operations: Mpumalanga, Department of Water and Sanitation, Private Bag X11259, Mbombela, 1200.
Responsible Authority	"Responsible authority" in relation to a specific power or duty in respect of water uses, means (a) if that power or duty has been assigned by the Minister to a catchment management agency, that catchment management agency; or (b) if that power or duty has not been so assigned, the Minister
Riparian habitat	"Riparian habitat" includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.
Sensitive riffle habitats	A pool riffle rapid sequences that occur where a mixture of flows and depth provide a variety of habitats to support fish and invertebrate life. Pools are deep with slow water. Riffles are shallow with fast, turbulent water running over rocks. Runs are deep with fast water and little or no turbulence.
Watercourse	"Watercourse" means (a) a river or spring; (b) a natural channel in which water flows regularly or intermittently; (c) a wetland, lake or dam into which, or from which, water flows; and (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.
Extent of the watercourse	(a) the outer edge of the 1:100 year floodline or the delineated

-	riparian habitat, whichever is the greatest, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; and (b) Wetlands and pans: the delineated boundary (outer temporary zone) of any wetland or pan.
Regulated area of a watercourse	(a) The outer edge of the 1 in 100 year flood line and /or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; (b) In the absence of a determined 1 in 100 year flood line or riparian area the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act); or (c) A 500 m radius from the delineated boundary (extent) of any wetland or pan.

5. Description of activity and affected water resource(s)

Kusile is expected to be one of the world's largest power stations. Kusile is being constructed and operated by Eskom which is the largest producer of electricity in Africa and provides South Africa with approximately 95% of its electricity. Upon completion, Kusile will consist of 6 boiler units of which each will be rated to generate 800MW with a total capacity of 4800MW. Although the power station is still under construction, most operating units are now in commercial phase (4 out of 6). The operation of the power station is concurrent with the construction of the remaining two units. Kusile is operating under 9 Water Use Licences and is only consolidating 6 licences.

APPENDIX I

GENERAL PROVISIONS AND CONDITIONS OF THE LICENCE

1. GENERAL PROVISIONS

Legal Framework

- 1.1 This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998) as amended from time to time.
- 1.2 The licence shall not be construed as exempting the Licensee from compliance with the provisions of any other applicable Act, Ordinance, Regulation or By-law.

Administrative duties/obligations/responsibilities of the Licensee

- 1.3 The responsibility for complying with the provisions of the licence is vested in the licensee and not any other person or body.
- 1.4 The licensee will be responsible for any water use charges or levies imposed by a Responsible Authority according to the pricing strategy. The levies/charges will be charged from the date of the issuance of this licence.
- 1.5 No water taken may be pumped, stored, diverted, or alienated for any other purpose other than as intended in this licence without the written approval of the Delegated Authority.
- 1.6 It is the responsibility of the licensee to request an amendment of this licence to reflect the registered volume should the requirements change. All requests must be made to the Provincial Head.

Change of property details

- 1.7 Amendment of the licence to reflect the name of the new owner will not be approved if there are any outstanding charges or levies imposed by the Responsible Authority to the previous owner.

Issue of licence no guarantee of supply

- 1.8 This licence does not imply any guarantee that the said quantities and qualities of water will be available at present or at any time in the future.

Monitoring

- 1.9 The quantity of water authorised to be taken in this licence may not be exceeded.
- 1.10 The quality of water authorised to be disposed and discharged in this licence may not be exceeded.
- 1.11 Any changes to the monitoring programmes should be approved by the Provincial Head.

Reviewal of licences

- 1.12 The volume authorised in this licence may be reduced when the licence is reviewed.
- 1.13 No water taken may be pumped, stored, diverted, or alienated for any other purpose other than as intended in this licence without the written approval of the Delegated Authority.

Effecting of the Reserve

- 1.14 While effect must be given to the Reserve as determined in terms of the Act, where a desktop determination of the Reserve has been used in issuance of a licence, when a comprehensive determination of the Reserve has finally been made, it shall be given effect to.

Liabilities and Rights

- 1.15 The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of, shortage of water; inundations or flood; siltation of the resource; and required Reserve releases.
- 1.16 The Minister reserves the right to construct water storage works at any time in any watercourse and to store all surplus water reaching the storage works, as well as to control the allocation of such water.

Dam Safety Requirements

- 1.17 The licensee is not indemnified from any detrimental effect that the dam(s) may have on other properties.
- 1.18 The Department does not accept any responsibility or liability for any damages or losses that may be suffered by any other party because of the construction and utilisation of the dams.
- 1.19 The licensee is not exempted from compliance with the provisions of the Dam Safety Regulations published under Government Gazette Notice R.139 of 24 February 2012 or any amendment thereof read with Chapter 12 of the Act, which are applicable to all dams with a safety risk.

Restrictions

- 1.20 The licensee must adhere to any restrictions that are gazetted and imposed on the respective water resource.

Water measurement and reporting

- 1.21 The Provincial Head may at any time direct a licensee, at the licensee's expense, to have the accuracy of the licensee's water measuring device/s verified, in addition to the requirements of their inspection and calibration schedule by a person or an institution accredited to verify the accuracy.

Stormwater Management

- 1.22 Stormwater leaving the licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped, spilled on the premises.

Amendments

- 1.23 The licensee may apply for amendment of this licence in terms of the Act at any time during the period of validity of this licence. Applications must be submitted to the Provincial Head.

Appeals

- 1.24 If this licence is appealed, it is automatically suspended and the water use activities must cease upon receipt of a notification of the appeal from the Department, alternatively the licensee may request the Minister to lift the suspension pending conclusion of the appeal via the Chief Director Legal Services at the address below:

Private Bag X313,
Pretoria,
0001

2. GENERAL CONDITIONS

Administrative duties/obligations/responsibilities of the Licensee

- 2.1 The licensee must avail an original copy of the water use licence and the supporting reports upon request by the Department.
- 2.2 The conditions of the authorisation must be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of these activities and the licensee must take such measures that are necessary to bind such persons to the conditions of this licence.

Commencement of water use licence.

- 2.3 The licensee must inform the Provincial Head in writing within thirty (30) days upon completion of the activity/ies.
- 2.4 The water uses authorised in this licence must be fully exercised within five (5) years from the date of issuance of this licence.
- 2.5 If the licensee cannot exercise or not fully exercise the water use licence within 5 (five) years, the licensee may request from the Provincial Head, with reasons, an extension of time to fully utilise the said water use licence, at least three months, before the expiry of the 5 (five) years. Only one request for extension of time, with maximum of 2 (two) years for commencement or of fully exercising of water use licence will be considered.

Change of details of licensee or property

- 2.6 The licensee must inform the Provincial Head of any change of ownership, name, address, premises and/or legal status within sixty (60) days of such change taking place.
- 2.7 If the properties in respect of this licence is/are subdivided or consolidated, the licensee must provide full details of any change(s) in respect of the properties to the Provincial Head within sixty (60) days after the registration of title deed(s).

- 2.8 If the licensee is not the end user/beneficiary of the water user related infrastructure and will not be responsible for long term maintenance and management of the infrastructure, the licensee must provide a hand over report to the successor in title including a brief management/maintenance plan and the agreement for infrastructure along with allocation of responsibilities, within sixty (60) days after the date of change of end user or beneficiary.

Early renewal for the Licence

- 2.9 The licensee must, if needed, apply for early renewal of this licence in terms of the Act within one (1) year before the expiry date of a licence. The application must be submitted to the Provincial Head.

Malfunctions, incidences, contingencies and pollution prevention

- 2.9 The licensee must service all vehicles and other machinery outside the extent of the watercourse/s.
- 2.10 Oils and other potential pollutants must be disposed of at a licensed site, with the necessary agreement from the owner of such a site.
- 2.11 The licensee must handle, transport, store and use any hazardous substances according to the relevant legislation or South African National Standards (SANS).
- 2.12 Accurate and up-to-date records must be kept of all system malfunctions resulting in non-compliance with the requirements of this licence. The records must be available for inspection by the Provincial Head upon request. Such malfunctions must be tabulated under the following headings with a full explanation of all the contributory circumstances:
- 2.12.1 operating errors;
 - 2.12.2 mechanical failures (including design, installation or maintenance);
 - 2.12.3 environmental factors (e.g. flood);
 - 2.12.4 loss of supply services (e.g. power failure); and
 - 2.12.5 other causes.

- 2.13 Any incident that causes or may cause water pollution shall be reported to the Provincial Head or the designated representative within 24 hours. Should the incident occur during a weekend or public holiday, the licensee must report the incident on the next official working day.
- 2.14 The licensee must, within 14 days, or a shorter period of time, as specified by the Provincial Head, from the occurrence or detection of any incident referred above, submit an action plan which must include a detailed time schedule to the satisfaction of the Provincial Head of measures to be taken to:
- 2.14.1 correct the impacts resulting from the incident;
 - 2.14.2 prevent the incident from causing any further impacts; and
 - 2.14.3 prevent a recurrence of a similar incident
- 2.15 All incidents must be recorded in an incident register.

Water Conservation and Water Demand Management (WC/WDM)

- 2.16 The licensee must establish and implement a continual process of raising awareness among itself, its workers and stakeholders with respect to water conservation and water Demand Management initiatives.
- 2.17 The licensee shall use water efficiently to minimise total water intake, avoid usage of water where possible, implement best management and operating practices, and maximise the reuse /recycle of contaminated water.
- 2.18 The licensee must continually investigate new and emerging technologies and put into practice water efficient devices and /or apply technique for the efficient use of water, in an endeavour to conserve water at all times.
- 2.19 The licensee must develop and submit water conservation and water demand management (WC/WDM) plan to the Provincial Head within one (1) year from the date of issuance of this licence. The WC/WDM Plan should:
- 2.19.1 quantify the water use efficiency of the activity;

- 2.19.2 contain the industry water management and water loss strategies and programmes;
- 2.19.3 sets annual targets for improved water use efficiency for the industrial activity, beneficiation and waste disposal practices and stipulates which measures will be implemented to achieve the targets on the industry;
- 2.20 The licensee must report annually on the implementation of WC/WDM plan including retrofitting with water efficient technologies and devices, reduction of total water demand, improvement in water use efficiency benchmarks and target.
- 2.21 The licensee must update the WC/WDM plan every five (5) years and submit to the Provincial Head for approval.
- 2.22 The licensee must, where water is stored off-channel in a dam or reservoir ensure that all distribution and reticulation systems or pipelines are properly constructed, operated and maintained in good working order to prevent water losses through physical leakages, burst and reservoir overflows.

Storm water management

- 2.23 Storm water management facilities must be operated and maintained in a sustainable manner throughout the project as detailed in the Storm Water Management Plan.
- 2.24 Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the stream.
- 2.25 All storm water that would naturally run across the dirty areas shall be diverted via lined channels and drains designed to contain the 1:50 year flood.
- 2.26 The dirty storm water system shall be designed and implemented to provide suitable routing and pumping capacity for contaminated storm water from the individual facilities to the respective storm water dams in accordance with the design specifications.
- 2.27 Clean storm water must be diverted from roads and project site and must be managed in such a manner as to disperse runoff and to prevent the concentration of storm water flow.

- 2.28 The Licensee must ensure that no contaminated stormwater is released to the surface waters.
- 2.29 The polluted storm water captured in the storm water control dams shall be reused and recycled.

Monitoring, Methods of analysis

- 2.30 Sample analysis must be conducted by a recognized analytical laboratory, accredited by the South African National Accreditation System (SANAS), or that participates in a recognised Proficiency Testing Scheme to analyze the relevant constituents in the wastewater.
- 2.31 The date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis.
- 2.32 The licensee must adhere to the monitoring programmes submitted with the application.

Water measurement and Reporting

- 2.33 The licensee shall install appropriate water measuring devices to measure the amount of water abstracted prior use of water.
- 2.34 The licensee must install the flow metering devices to all water uses and readings must be taken on each flow meter on a monthly basis.
- 2.35 Flow measuring, recording and monitoring devices shall be maintained in a sound state of repair and calibrated/ verified by a suitable competent person as per device specification. This must include a programme of checking, calibration, and/ or replacement of measuring devices.
- 2.36 Calibration /verification certificates of the flow measuring, recording and integrating devices must be available for inspection by the Provincial Head or the representative upon request.

Membership to a Water Users Association

- 2.37 If a water user association exists or is established in the area to manage the resource, it is compulsory for the licensee to be a member of the water user association. The licensee must adhere to the rules, regulations and water management stipulations of the water user association.

Restrictions on access to certain areas

- 2.38 Strict access procedures must be developed and followed in order to control access to the property. Access to the facility/ies must be limited to authorised persons and animals.
- 2.39 Notices prohibiting unauthorised persons from entering the areas as well as internationally acceptable signs indicating the risks involved in case of an unauthorised entry must be displayed along the boundary fence of these areas.

Auditing and Reporting

- 2.40 The licensee must conduct annual internal audits on compliance with the conditions of this licence. A report on internal audits must be submitted to the Provincial Head within sixty (60) calendar days of the finalisation of the audits.
- 2.41 The licensee must appoint an independent external auditor to conduct biennial (every two (2) years) external audits on compliance with the conditions of this licence. A report on the audit must be submitted to the Provincial Head within sixty (60) calendar days of the finalisation of each audit.

Security by applicant

- 2.42 The Licensee must ensure sufficient financial provision according to applicable legislation.

Compensative measures

- 2.43 The licensee must prevent adverse effects on other water users. All complaints must be recorded in complaints register and be investigated by a suitable qualified person, accredited by an institution/ registration body, appointed by the licensee, and if investigations prove that the licensee has impaired the rights of other water users, the licensee must implement appropriate compensative measures as determined by the Minister.

APPENDIX II

1. Section 21(b) of the Act: Storing water

- 1.1 The licensee is authorised to store a maximum quantity of **688 000 m³** of water in the facility in Table 3.

Table 3: Water Uses authorised

Water use description	Purpose	Properties	Capacity (m ³)	Co-ordinates
Water stored in a Return Water Reservoir	To be used in the generation of electricity.	Hartebeesfontein 537 JR	688 000 m ³	-25.918139064812184, 28.935861069206727

- 1.2 The quantity of water stored must be recorded at the last day of each month and the records must be submitted to the Provincial Head annually.

2. Monitoring requirements

- 2.1 The licensee must install appropriate measuring devices to measure the levels of the dam. Should the dam level reach a critical level, then protective measures should be implemented. The report must be submitted to the Provincial Head on an annual basis.

3. Dam safety requirements

- 3.1 The construction, enlargement, alteration or repair of a dam with a safety risk, must be carried out under a licence issued in terms of the above Regulations.
- 3.2 The licensee must supply any information, drawings, specifications, design assumptions, calculations, documents and test results when requested by the Provincial Head.

4. Ecological Water Requirements

- 4.1 The dam must allow for the Reserve releases as per approved designs.

APPENDIX III

Section 21(c) water use: Impeding or diverting the flow of water in a watercourse/s

**Section 21(i) water use: Altering the bed, banks, course or characteristics of a
watercourse/s**

1. Section 21(c and i) water use activities

- 1.1 This licence authorises the Section 21(c) or (i) water use activities as set out in Table 4 and in the water use licence application reports submitted to the Department (refer condition 1.2):

Table 4: Water uses authorised

Water Use	Description of Water Use	Purpose	Capacity/ size/ Area/ Volume Licenced (m3/a)	Farm Portion	Coordinates
Section 21 (c) & (i)	Security fence within 500m of a boundary of a wetland	Security Fence 1	L=500m	Portion 1 of Land Parcel 537 of the Major Region JR (Portion 1 of Farm Hartbeestfontein 537)	Start -25.907361351433828, 28.921083404055704 End -25.90736120064309, 28.921083571693732
	Security fence within 500m of a boundary of a wetland	Security Fence 2	L=514m	Land Parcel 537 of the Major Region JR	Start -25.91941660541423, 28.90536118183344 End -25.91941675618949, 28.90536134947151
	Security fence within 500m of a boundary of a wetland	Security Fence 3	L=400m	Land Parcel 537 of the Major Region JR	Start -25.91899993874736, 28.894611181833405 End -25.919000240299003, 28.89461134947148

Water Use	Description of Water Use	Purpose	Capacity/ size/ Area/ Volume Licenced (m3/a)	Farm Portion	Coordinates
	Security fence within 500m of a boundary of a wetland	Security Fence 4	L=1800m	Portion 25 of Klipfontein 566	Start -25.937833422842196, 28.895388959611214 End -25.937833272090494, 28.89538879197314
	Security fence within 500m of a boundary of a wetland	Security Fence 5	L=125m	Land Parcel 566 of the Major Region JR	Start -25.925888827639756, 28.90719468280492 End -25.9258889784068, 28.907194347528716
	Security fence within 500m of a boundary of a wetland	Security Fence 6	L=1000m	Portion 11 of Farm Klipfontein 566	Start -25.94683342283534, 28.91008323641758 End -25.946833272095116, 28.910083236417652

Water Use	Description of Water Use	Purpose	Capacity/ size/ Area/ Volume Licenced (m3/a)	Farm Portion	Coordinates
	Embarkment culvert crossing wetland	Crossing	L=125m	Land Parcel 566 of the Major Region JR	Start -25.925888978406853, 28.907194850442888 End -25.925888978406878, 28.907194515166708
	Pipeline crossing wetland	Crossing	L=170m	Land Parcel 537 of the Major Region JR	Start -25.922888978409087, 28.900777680862024 End -25.922889129179946, 28.900777680862067
	Ash/gypsum co-disposal facility and dirty water dam with pump house within 500 m from the boundary of a wetland and the applicable buffer area for: (a) The access	Location within 500m of a watercourse	L=500m W= 23m H=51m Size=250ha	Portion 3 of Farm Klipfontein 566	Start -25.93688882764549, 28.921000238360378 End -25.936888827645518, 28.920999735446212

Water Use	Description of Water Use	Purpose	Capacity/ size/ Area/ Volume Licenced (m3/a)	Farm Portion	Coordinates
	embankment between the power station terrace and the radial stacker terrace; b. The Secondary Access Road from the D690 (the Kusile access road between the N12-20 and the D686 (R545); c. Clean stormwater drainage systems, including temporary and permanent drains and the silt retention dams; d. Dirty				

Water Use	Description of Water Use	Purpose	Capacity/ size/ Area/ Volume Licenced (m3/a)	Farm Portion	Coordinates
	water drainage system, including concrete drains and silt retention dams; and e. Servic e roads and workshop terrace area.				
	Bridge across stream diversion canal to the coal trans-loading facility	Coal Yard Stream Diversion	H=3m W=18m L=30m	Farm Klipfontein 566 Portion 26	Start -25.93244487316466, 28.92758345601334 End -25.93244467136915, 28.92758362669996
	Construction and operation of a raw water pipeline within a watercourse	Raw water pipeline	L=28 km	Portion 11 of Farm Klipfontein 566	Start -25.946472448347052, 28.896888791103464 End

Water Use	Description of Water Use	Purpose	Capacity/ size/ Area/ Volume Licenced (m3/a)	Farm Portion	Coordinates
					-25.946472297592628, 28.896889014617358

- 1.2 The licensee must carry out and complete all the activities listed under condition 1.1 according to the following:
 - 1.2.1 Integrated Water and Waste Management Plan
 - 1.2.2 WULA Summary Report
 - 1.2.3 Consolidated Audit reports
 - 1.2.4 The Record of Decision (RoD) for Project Reference 12/12/20/807, Construction of the Eskom Generation Proposed 5400MW Coal-Fired Power Station, Witbank issued by the Department of Environmental Affairs and Tourism, dated 17 March 2008.
 - 1.2.5 Wetland letters from Wetland Consulting Services titled: Verification of the Wetland Delineation and required Buffer zones for Kusile 10-year Ash Memo_WCS (Dated 16 December 2012) and 10-year Ash Memo_WCS_REV2 (Dated 11 January 2013)
 - 1.2.6 Wetland letters from Wetland Consulting Services titled: Present Ecological Status (PES) assessment foot the wetlands adjacent to the Kusile 10-year Ash Dam, dated 16 January 2013.
 - 1.2.7 Kusile Power Station: Wetland Management Plan, dated July 2010, reference no. ZPJ 12615.
 - 1.2.8 Specialist Study. Impacts of Dewatering and Stream Diversion on Aquatic Ecosystems, 13 June 2008.
 - 1.2.9 Hydrological Stream Diversion Assessment Report, June 2008.

- 1.2.10 Report on Ecological Follow-up Compliance Surveys for the Proposed ESKOM Bravo Power Station Near Kendal, Mpumalanga, March 2008.
- 1.2.11 Environmental Impact Assessment Process: Proposed Coal-Fired Power Station and
- 1.2.12 Associated Infrastructure in the Witbank Area. Final Environmental Impact Report, February 2007; and
- 1.2.13 Draft Construction Environmental Management Plan (EMP), August 2008 (until the final plan has been approved by the Department,
- 1.3 No activity must take place within the extent of a watercourse/s, unless authorised by this licence.
- 1.4 No fundamental alterations of the work method statement, site plan/s and drawings are allowed, unless a modification is requested and granted by the responsible authority in writing; and

2. FURTHER REQUIREMENTS

- 2.1 Work method statements, site plan/s and detailed design drawings for the construction of all infrastructure impeding and/or diverting flow of watercourses as well as alternations to watercourses on the property/is must be submitted to the Regional Head for written approval and implementation as directed before construction commences and will be regarded as forming part of the conditions of this licence. The foregoing must indicate the regulated activities, marking the limits of disturbance in relation to the impacted watercourses; morphology of the watercourses; site specific impacts; and environmental management, particularly erosion and sediment, controls, and measures.
- 2.2 For all the activities listed under condition 1.1 Table 1, "as-built" plan(s) for Phase 2 and engineering drawing(s) prepared by a registered professional engineer, must be submitted to the Regional Head within six (6) months for the existing water uses, from the date of issuing of this licence. These plans and drawing (s) must indicate the watercourse(s) of all infrastructure impeding and/or diverting flow of watercourses as well as alterations to watercourse(s) on the property.

3. Structures, Construction Plant and Materials

- 3.1 Structures must withstand a 1:100 year flood.
- 3.2 Structures must be non-erosive, structurally stable and must not induce any flooding or safety hazard.
- 3.3 Structures must be inspected for a minimum of once a quarter for accumulation of debris, blockage, erosion of abutments and overflow areas - debris must be removed and damages must be repaired and reinforced within a reasonable time.
- 3.4 The license authorizes Eskom Holdings Limited: Kusile Power Station to impede or divert the flow of water and altering the flow in a wetland for the erection of a perimeter and security fence; construction of an Embankment Culvert that connects the terrace of where the power plant is going to be constructed with the ash dump and will house all the conveyor systems and pipelines to cross as well as the fence line and the pipeline between the Ash Dump Dirty Dam and the Station Dirty Dam.
- 3.5 All areas affected by the construction should be rehabilitated upon completion of the construction phase for the development. Areas should be reseeded with indigenous vegetation species as required, and the use of seed nets is recommended to prevent erosion.
- 3.6 Where any permanent road is within the 100 m buffer zone of the watercourse, this portion of the road shall be concreted or tarred.

4. Flow

- 4.1 The diversion activities must be conducted in a manner that does not negatively affect the yield of the water course where the activity will take place. The licensee must ensure that the overall magnitude and frequency of flow in the watercourse/s does not decrease, other than for natural evaporative losses and authorised attenuation volumes.
- 4.2 Where flow in watercourse/s is permanent, the trench must be staged across part of the channel to maintain flows. Flows must not be stopped unless essential, if necessary to stop flows it must be for a minimal time only.

- 4.3 The diversion structures may not restrict river flows by reducing the overall river width or obstructing the river flow.
- 4.4 The activities in Table 1 must be conducted in a manner that does not negatively affect catchment yield (i.e. beyond the impacts considered), hydrology and hydraulics. The licensee must ensure that the overall magnitude and frequency of flow in the watercourses does not decrease, other than for natural evaporative losses and authorised attenuation volumes.
- 4.5 The activities in Table 1 must ensure that hydrological and Geohydrological flows are at all times maintained where the flows are connected to the respective wetlands. The flows to the wetlands shall be protected by applying the wetland buffer.
- 4.6 The development may not impede natural drainage lines unless authorised in terms of this license.
- 4.7 Appropriate mitigation measures must be developed and implemented to minimise impacts on the natural flow regime of the watercourse i.e., through placement of structures/supports and to minimise turbulent flow in the watercourse.
- 4.8 Structures the be maintained to prevent the damming of stream/river water and not impact on the flow of the water, during the operational phase.

5. Riparian and Instream Habitat (Vegetation and Physical Structure)

- 5.1 Activities must start up-stream and proceed into a down-stream direction where feasible, so that the recovery processes can start immediately, without further disturbance from upstream works.
- 5.2 Operation and storage of equipment within the riparian habitat must only take place within the approved limits of disturbance indicated in the site plans and work method.
- 5.3 Activities must not occur in sensitive riffle habitats unless authorised by this licence.
- 5.4 Indigenous riparian vegetation, including dead trees, outside the limits of disturbance indicated in the site plans must not be removed from the area.
- 5.5 Alien and invader vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be sustainably eradicated or controlled.

- 5.6 Soils that have become compacted through the water use activities must be loosened to an appropriate depth to allow seed germination.
- 5.7 Stockpiling of removed soil and sand must be stored outside the extent of the watercourse/s, to prevent being washed into the watercourse/s and must be covered to prevent wind and rain erosion.
- 5.8 The use of machinery within the instream and riparian habitat will lead to compaction of soils and vegetation and must be restricted to demarcated areas only.
- 5.9 Where appropriate and possible, riparian vegetation, including dead trees, may not be removed from the area. In particular, snags (fallen trees and branches) in the river must be protected (i.e., not collected for firewood or any other purpose)
- 5.10 The Licensee shall maintain the diversion canal to allow sub-critical flow to protect against erosion while still allowing some sediment deposition.
- 5.11 To maintain perennial flow and the most important components comprising the natural season variation in flow.
- 5.12 All reasonable steps must be taken to minimise noise and mechanical vibrations in the vicinity of the watercourses. Noise levels (noise resulting from the ash facility and its associated activities) to be 70dB or below (daytime 06:00 – 22:00 and night-time 22:00 – 06:00) in the wetland areas and its buffer areas.
- 5.13 The Licensee shall ensure that disturbance is limited only to watercourses where the diversion and pipeline crossing will be taking place and rehabilitate disturbed areas with aquatic vegetation sourced from the diverted parent stream
- 6. Trenching:**
- 6.1 A buffer zone of **90 m** must be implemented for each wetland and activities within the buffer zone must be restricted to the trench line and working side of the trench.
- 7. Biota**
- 7.1 The licensee must allow movement of aquatic species, including migratory species where applicable.

- 7.2 Ensure implementation of all mitigation measures not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.

8. Rehabilitation and Management

- 8.1 The licensee must implement the rehabilitation programme to restore the watercourse/s to environmentally acceptable and sustainable conditions after completion of the activities as outlined in the rehabilitation plan.
- 8.2 The rehabilitation must be implemented according to the approved Rehabilitation Plan.
- 8.3 A photographic record must be kept as follows and submitted with reports as set out in condition 10:
- 8.4 Dated photographs of all the sites to be impacted before construction commences
- 8.5 Dated photographs of all the sites during construction on a monthly basis; and
- 8.6 Dated photographs of all the sites after completion of construction, seasonally.
- 8.7 All disturbed areas must be re-vegetated with indigenous plants in consultation with an indigenous plant expert, ensuring that during rehabilitation only indigenous shrubs, trees and grasses are used in restoring the biodiversity.
- 8.8 Topsoil must be ripped and redistributed. A height restriction on stockpiles of not more than **2m** must be followed in order to preserve the soil's microbiological and nutrient characteristics. Topsoil must be placed immediately after stripping, if possible.
- 8.9 The Licence shall embark on a systematic long-term rehabilitation programme to restore natural watercourses to environmentally acceptable and sustainable conditions after construction, which shall include, but not limited to:
- 8.10 The rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a biodiverse riparian ecosystem: and

- 8.11 Annually assess the habitat to monitor the sustainability of the diversions and compliance with these conditions. Action must be taken to rectify any negative impacts
- 8.12 Topsoil must be stripped and redistributed.
- 8.13 Compacted and disturbed areas must be shaped to natural forms and to follow the original contour. In general cut and fill slopes and other disturbed areas must not exceed 1:3 (v:h) ratio, it must be protected, vegetated, ripped and scarified parallel with the contour.

9. MONITORING AND REPORTING

- 9.1 The monitoring plan must be implemented, and reporting done to the Provincial Head.
- 9.2 Monitoring reports must be submitted to the Provincial Head yearly or until otherwise agreed in writing with the Provincial Head.
- 9.3 During operation and maintenance, quarterly monitoring reports must be submitted to the Regional Director until otherwise, agreed with the Regional Director in writing
- 9.4 A qualified professional and/or responsible scientist must be appointed/employed by the licensee who must give effect to the various licence conditions and to ensure compliance thereof pertaining to all activities impeding and/or diverting flow of watercourses as well as alterations to watercourses in the property as set out in condition 1.1.
- 9.5 At least two water quality monitoring points, one upstream and one downstream of the affected length of the watercourse/s should be monitored.
- 9.6 A bio-monitoring programme (SASS) must be implemented along the affected length of the watercourse/s and must include a habitat assessment. Guidance to bio monitoring.
- 9.7 Exact positions of monitoring points must be indicated on the master layout plan (including their co-ordinates).

10. Post-operational Phase

- 10.1 Upon completion of the project, if survey results show that the watercourse/s is stable, an application may be made to the Provincial Head for written approval to continue monitoring at less frequent intervals.

- 10.2 Kusile must include the watercourse/s in its routine environmental inspection program and is obligated to advise the Provincial Head of any unusual deflections or observations.

11. Water Quality

- 11.1 In-stream water quality must be analysed on a monthly basis at monitoring points both upstream and downstream of the activities for the following variables:
- 11.1.1 pH;
 - 11.1.2 Electrical conductivity (mS/M);
 - 11.1.3 Suspended solids (mg/l);
 - 11.1.4 Turbidity;
 - 11.1.5 Total dissolved solids (mg/l)
 - 11.1.6 Dissolved Oxygen (DO) (mg/l);
 - 11.1.7 Sulphate (mg/l);
 - 11.1.8 Orthophosphate as P (mg/l);
 - 11.1.9 Nitrate (NO₃) as N (mg/l);
 - 11.1.10 Nitrite (NO₂) as N (mg/l);
 - 11.1.11 Oil and grease (mg/l).
- 11.2 Monitoring must be undertaken as set out in condition 11.
- 11.3 The licensee must ensure that the quality of the water to downstream water users does not decrease because of the water use activities listed under condition 1.1.

- 11.4 The licensee shall maintain perennial flow and the most important components comprising the natural season variation in flow.

12. Site-specific conditions

- 12.1 Energy dissipation structures must be installed upstream of the discharge point to the aquatic system in order to prevent erosion of the water resources and regularly inspected for satisfactory performance, including those in the diverted stream/canal.
- 12.2 The licensee must ensure that no erosion of the stream occurs before and after the culvert structure and must further install erosion protection structures to prevent headcut erosion.
- 12.3 Remediation measures for removing sediment fans and soil stockpiles from the wetland areas must be placed within one (1) month of the receipt of this licence.
- 12.4 Proof of clean WUL audits with no outstanding issues associated with the conditions must be submitted by Kusile within 6 months of issuance of this licence.
- 12.5 The remaining wetlands on the ESKOM property/ies associated with the Bravo Power station must be rehabilitated to an ecological class agreed with the Chief Director: Resource Directed measures and must be undertaken in consultation with the Department's Wetlands Task Group.
- 12.6 A final Construction EMP (including rehabilitation strategies) must be submitted to and approved by the Regional Heas before construction commences in respect of the Section 21 (c) and (i) water uses set out in condition 1.1. An EMP for the operation and maintenance phases of these water uses must be submitted before completion of the construction phase and an EMP for the decommissioning of any of these water uses one (1) year before commencing with closure to the Regional Head for written approval.
- 12.7 Diversions must be made as natural as possible and proof provided using natural slopes, material erosion protection, topsoil, vegetation.
- 12.8 Impacted watercourses must be made/ rehabilitated as natural as possible.
- 12.9 A Recommended Ecological Class (REC) must be submitted for the watercourses within 3 months after the issuance of this licence.

- 12.10 The Master Plan must be updated with the latest infrastructure, diversions, watercourses, roads, scientific buffers.
- 12.11 Plant Species Plans must be drawn up by landscape architect or botanist, submitted for approval and implemented as part of rehabilitation.
- 12.12 Crossings must cater for hydrological and ecological connectivity and proof provided.
- 12.13 Clean stormwater drains must be made as natural as possible using rock, topsoil, erosion protection, vegetation.
- 12.14 Changes to the Stormwater management plan must be shown.
- 12.15 Stormwater attenuation dams must be made natural as possible and outside watercourses with slow diffused discharge back to watercourses.
- 12.16 The licensee should clarify temporary and permanent roads timeframes and positions for permanent surfaces.
- 12.17 The licensee should clarify sandmining impacts around Honingkrantz pan and possible links to Kusile.
- 12.18 The licensee shall ensure that sand and fine gravel are transported through the system.
- 12.19 The licensee shall ensure a shear stress sufficient to maintain sediment transport through the system.
- 12.20 The licensee shall ensure that large floods occur from time to time.
- 12.21 The license authorizes Eskom Holdings Limited: Kusile Power Station to impede or divert the flow of water and altering the flow in a wetland for the erection of a perimeter and security fence; construction of an Embankment Culvert that connects the terrace of where the power plant is going to be constructed with the ash dump and will house all the conveyor systems and pipelines to cross as well as the fence line and the pipeline between the Ash Dump Dirty Dam and the Station Dirty Dam.
- 12.22 No site activities shall occur beyond the proposed site location of the erosion and sedimentation controls and marked limits of disturbance.

- 12.23 The conditions of the authorisation shall be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of this activity and the applicant shall take such measures that are necessary to bind such persons to the conditions of licence.
- 12.24 A suitably qualified person, appointed by the licensee, and approved, in writing, by the regional director, must be responsible for ensuring that the structures are constructed and maintained in line with the design specifications.
- 12.25 The licensee shall have a full-time civil engineer supervisor on the site during construction of all infrastructure impeding and/or diverting flow of watercourses as well as alternations to watercourses on the properties. The contractor shall have an approved site agent on the site during construction.
- 12.26 No activity must take place within 1:100 year flood line or the delineated riparian habitat, whichever is the greatest, or within 500 m radius from the boundary of any wetland unless authorised by this licence.
- 12.27 The fence structure must not interfere with wetland function.
- 12.28 Storm water from the site may not enter wetlands areas at points of contact with the fence and preferential flow must be avoided.
- 12.29 Maintenance and monitoring around wetlands must be specified in the monitoring programme.
- 12.30 No campsite of stockpiles must occur within the riparian areas.
- 12.31 No barbed wire mesh must be used at this will cause harm to fauna.
- 12.32 The fencing must follow the watershed as defined in condition 3.4.3 of licence of licence 04/B20F/CG1/1836 (which state that the activities of the ash/gypsum co-disposal facility and dirty water dam with pump house within 500m from the boundary of the wetland and the applicable buffer areas must ensure that the hydrological and geological flows are at all times maintained where the flows are connected to respective wetlands).
- 12.33 A single welded steel structure, with no bends and joints shall be used.
- 12.34 The Licensee shall ensure the use of flow control monitors and pressure monitors.

- 12.35 A spillage management plan must be in place and flow must be stopped immediately if a danger arises.
- 12.36 The Licensee must maintain spills register and deal with spillage incidents in the authorised manner.
- 12.37 Areas of wetlands that are destroyed shall be off-set by the Licensee as specified in licence 04/B2DF/CG1/1836 (which states that: the wetland offset shall be formally assessed by addressing equivalent hectares to be offset and obtaining a positive net gain in wetland functionality as provided by the impacted wetlands. This must include financial provisions, through process followed, stakeholder consultation, the current PES/EIS of those wetlands and an undertaking that no activity in the future will impact on the offset area).

APPENDIX IV

Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource

1. DISPOSAL OF WASTE /WATER CONTAINING WASTE

1.1 This License authorises the following section 21 (g) water use activities as indicated in Table 5.

Table 5: Water Uses Authorised

Water Use	Description of Water Use	Capacity/ size/ Area/ Volume Licenced (m3/a)	Farm Portion	Coordinates
Section 21 (g)	Dirty water run-off from Ash Dump to a lined storage dam	529 430m ³ /a	Land Parcel 566 of the Major Region JR	- 25.925638914017544, 28.924916680638237
	Dirty Water Storage dam	204 000m ³ 529430 m ³ /a	Land Parcel 566 of the Major Region JR	- 25.931833458967766, 28.897333514943004

Water Use	Description of Water Use	Capacity/ size/ Area/ Volume Licenced (m ³ /a)	Farm Portion	Coordinates
	Supressing with waste water on ash/gypsum dump to suppress dust	984 040 m ³ /a	Land Parcel 566 of the Major Region JR	-25.93211123674524 28.91113873522238
	Coal Storage Yard	852 000m ³	Portion 1 of Land Parcel 537 of the Major Region JR (Portion 1 of Farm Hartbeestfontein 537)	- 25.925638914017544, 28.924916680638237
	Ash/gypsum Co-disposal facility	4 9210 295 ton/a	Land Parcel 566 of the Major Region JR	-25.93211120062434, 28.911139127249232
	Emergency Ashing Area	13 975 m ²	Portion 1 of Land Parcel 537 of the Major Region JR (Portion 1 of Farm Hartbeestfontein 537)	- 25.924278493930967, 28.915665891340588
	Station Dirty Dam	284 510 m ³ /a	Land Parcel 537 of the Major Region JR	- 25.920333509244166, 28.897611069211894
	Temporary Stockpiling Coarse Ash	13 975 m ³	Land Parcel 566 of the Major Region JR	-25.92702780290616, 28.90286123684991
	Station Recycle/Holding Dam	78 400 m ³	Portion 1 of Land Parcel 537 of the Major Region JR	-25.9232502261556, 28.913333123795997

Water Use	Description of Water Use	Capacity/ size/ Area/ Volume. Licenced (m3/a)	Farm Portion	Coordinates
			(Portion 1 of Farm Hartbeestfontein 537)	
	Station 2 dirty dam settling facility	184 453 m ³	Land Parcel 537 of the Major Region JR	- 25.921305957407885, 28.90316778381708
	Coal stockyard/limestone building settling facility	4 977 m ³	Portion 1 of Land Parcel 537 of the Major Region JR (Portion 1 of Farm Hartbeestfontein 537)	- 25.924889115041385, 28.91805551365633
	2 holding/recycle dams	35 623 m ³	Portion 1 of Land Parcel 537 of the Major Region JR (Portion 1 of Farm Hartbeestfontein 537)	-25.92324992500358, 28.913333349714723

2. CONSTRUCTION, OPERATION AND MAINTANANCE

- 2.1 The licensee shall carry out and complete all the activities listed in condition 1.1, including the operation of the wastewater containment facilities according to the Reports and according to the final plans as approved by the Provincial Head.

- 2.2 The maintenance of the wastewater containment facilities must be carried out under the supervision of a professional Civil Engineer, registered under the Engineering Profession of South Africa Act, 1990 (Act 114 of 1990), as approved by the designer.
- 2.3 The licensee must ensure that the disposal of the wastewater into containment facilities and the operation and maintenance of the system are done according to the provisions in the submitted reports.
- 2.4 The wastewater containment facilities shall be operated and maintained to have a minimum freeboard of 0.8 metres above full supply level and all other water systems related thereto shall be operated in such a manner that it is at all times capable of handling the 1:50 year flood-event on top of its mean operating level.
- 2.5 The Licensee is authorised to establish and operate a storage dam with a capacity of two hundred ten thousand four hundred eighty cubic metres (210 480m³), referred to as Ash Dump dirty water dam on Portion 26 Farm of the farm Klipfontein 566, a volume of five hundred and twenty, nine thousand four hundred and thirty cubic metres per annum (529 430 m³/a), based on average of one thousand four hundred and fifty cubic metres per day (1450 m³/d) of waste water will be disposed.
- 2.6 The licensee is authorised for dust suppression on ash/gypsum dumps with dirty water of a maximum volume of two hundred and forty-six and ten cubic metres per annum (246 010 m³/a). The water for dust suppression will be sourced from the ash /gypsum dump dirty dam which will be supplemented from the holding/recycling dam when the need arise.
- 2.7 The dirty water storage dam for dirty run off from the Ash dump should be designed in such a manner that any spillage can be continued and reclaimed without any impact on the surrounding environment. A plan must be in place to stop overflowing in a dam in case of rainy seasons.
- 2.8 The licensee must ensure that the disposal of ash and operation of the ash are done according to the provisions in the Kusile power station ash dump complex operation manual to prevent water pollution

3. QUALITY OF WASTEWATER TO BE DISPOSED

- 3.1 The licensee shall monitor the quality of wastewater disposed of into a dirty water containment facility/ies as indicated in Table 6.

Table 6: Quality of water to be disposed into dirty water containment Facilities

Parameters/ Substances	Quality of water to be disposed
pH	6.0 - 10.8
Ca (mg/L)	590
Mg (mg/L)	330
Na (mg/L)	280
Mn (mg/L)	320
B (mg/L)	15.1
Fe (mg/L)	4.8
Al (mg/L)	2.5
Pb (mg/L)	2.3
Cu (mg/L)	0.08
Mo (mg/L)	0.12
Ni (mg/L)	0.13
V (mg/L)	0.50
Ba (mg/L)	0.24
Cd (mg/L)	0.18
Co (mg/L)	0.18
Cr (mg/L)	0.48

4. GROUNDWATER MONITORING

- 4.1 The licensee shall monitor groundwater resources to determine the impact of the activity on the water resource by taking samples at the monitoring points indicated in Table 7.

Table 7: Groundwater monitoring points

Sampling point name	Locality	X Co-ordinate	Y Co-ordinate
1049008	Next to visitors gate	25,9099	28,91759

Sampling point name	Locality	X Co-ordinate	Y Co-ordinate
1049009	South of Coal stockyard settling	25,9274	28,91664
1049010	Next to west gate	25,9274	28,896
1049017	south of ash dump	25,93989	28,90533
1049021	south of ash dump	25,94277	28,92259
1049025	Farm northwest of KPS	25,9233	28,88396
1049027	north of Raw water dam	25,9128	28,93232
BH 02	Farm north Downstream of	25,9026	28,90675
BH 03	KPS	25,91234	28,90014
BH 11	Farm northwest of KPS	25,9502	28,93147
BH 24	Farm southwest of KPS	25,9	28,89945
BH 25	Farm northwest of KPS	25,9045	28,89334
BH 27(LGWB4)	Farm northwest of KPS	25,9161	28,95413
BH 30 (LGWB11)	Farm southeast of KPS	25,9161	28,95413
DWBH06	Farm southeast of KPS	25,92171	28,92613
DWBH07	East of Coal stockyard	25,92496	28,93006
DWBH14	Northeast of coal stockyard	25.928382	28.922231
DWBH36	Southwest of Coal stockyard	25,91445	28,91236
GDF6D	Northwest of KPS	25,90808	28,92886
KP05	Farm east of KPS	25,91958	28,93214
1049014	Southwest of Raw water dam	25,91506	28,93476
1049018	Northwest of Raw water dam	25,93727	28,989815
MP14001	Farm east of Kusile (East gate)	25,9298	28,89699
MP14002	Northwest of dirty water dam	25,91896	28,89642
MP14003	Northwest of station water dam southwest of Coal stock yard	25,92724	28,92724

- 4.2 Monitoring boreholes in the Table 7 in condition 4.1 in Appendix IV must be clearly marked, numbered, and must be equipped with lockable caps. The Department reserves the right to sample monitoring boreholes at any time and to analyse these samples, or to have samples taken and analysed.

- 4.3 Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards (SABS), in terms of the Standards Act, 2008 (Act 8 of 2008)
- 4.4 The Licensee shall monitor groundwater on a quarterly basis at the groundwater monitoring points to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points described in Table 8.

Table 8: Groundwater monitoring variables and frequency

Variables	Frequency	Baseline groundwater quality
pH	Quarterly	6.1 - 7.9
Electrical Conductivity (mS/m)	Quarterly	22
Sodium (mg/L)	Quarterly	6.81
Magnesium (mg/L)	Quarterly	3.91
Calcium (mg/L)	Quarterly	5.39
Chloride (mg/L)	Quarterly	3.87
Sulphate (mg/L)	Quarterly	3.37
Nitrate (mg/L)	Quarterly	0.69
Fluoride (mg/L)	Quarterly	0.51
Manganese (mg/L)	Quarterly	0.53
Aluminium	Quarterly	0.05

- 4.5 The quality of the groundwater resource must be monitored by taking samples quarterly at groundwater monitoring points as described in condition 4.3 in Appendix IV Each sample shall be analysed for the variables and at frequencies, as shown in Table 8, in Appendix IV and/ or any other variable as may be required from time to time by the Provincial Head.
- 4.6 Should pollution occur or possible pollution occur, the licensee must conduct the necessary investigations to determine the impact on groundwater associated with the wastewater containment facilities and any mitigating actions that could be required. This must be done in consultation with the Provincial Head and at time frames set by the Provincial Head.

5. REPORTING

- 5.1 The licensee shall update the water balance annually and calculate the loads of waste emanating from the activities. The licensee shall determine the contribution of their activities to the mass balance for the water resource and must furthermore co-operate with other water users in the catchment to determine the mass balance for the water resource reserve compliance point.
- 5.2 The licensee shall submit the results of analysis for the monitoring requirements to the Provincial Head on a quarterly basis under **27/2/2/B620/53/2**.

6. INTEGRATED WATER AND WASTE MANAGEMENT

- 6.1 The Integrated Water and Waste Management Plan (IWWMP) and Rehabilitation Strategy and Implementation Plan (RSIP) must be updated annually and submitted to the Provincial Head for approval.
- 6.2 The licensee must, at least 180 days prior to the intended closure of any facility, or any portion thereof, notify the Provincial Head of such intention and submit any final amendments to the IWWMP and RSIP for approval.

7. Site specific conditions

- 7.1 The applicant presented the Water Balance that was based on the theoretical design parameters during the initial stages of the operations of the power station. It was indicated that there are actual measurements being conducted in different sections of the power generation process.
- 7.2 The applicant should conduct annual calibration of the Water Balance Model using the actual measured figures and suitable tools to measure varying conditions during the operating process of the plant. These will enable earlier detection of the potential risk or improvement within the system from the design theoretical figures.
- 7.3 The updated calibration and continuous updating of the water balance model shall be

undertaken within a period of six (6) months, and thereafter be presented to DWS on an annual basis as per the license annual audit condition requirements.

- 7.4 The applicant to comply with all the applicable existing license conditions and requirements of the individual water use license when the consolidation and amendment process has been granted and finalised.
- 7.5 The presented infrastructure was considered to be in good working condition. However, the license holder should ensure that the facilities are kept in a safe operating condition and should ensure timeous repair to the facilities should they suffer any damages.
- 7.6 Limitations: This recommendation does not exempt the applicant from complying with any other legislation. This review refers only to the activity as specified and described in the signed reports listed under documentation for consideration.
- 7.7 Deviation from accepted design: The licence holder must notify the DWS in writing, within 24 (twenty – four) hours, if any condition of the approved design and its acceptance cannot be adhered to during construction or is not adhered to during operation. The notification must be supplemented with reasons for non-compliance, and proposed rectification measures.
- 7.8 Standard specifications or prescribed management standards: The SANS standard specifications and generally accepted engineering practices specified shall be the most recent amendment thereof as at commencement.
- 7.9 The authorities shall not be held responsible for any damages or losses suffered by the licence holder or its successor in title in any instance where construction or operation after construction is temporarily or permanently stopped for reasons of non-compliance by the licence holder with the conditions of approval as set out in this document or any other

subsequent document emanating from these conditions of acceptance.

- 7.10 On completion of construction activities, a close out report must be submitted to DWS detailing but not limited to: Construction methods followed, tests for quality assurance undertaken, as-built drawings including a map showing as built footprint of the infrastructure. The supporting evidence shall include the number of tests, minimum, maximum, mean value and standard deviation for each test method undertaken on all materials used in the design and construction. All materials should be compliance with latest SANS standards at the time of construction.
- 7.11 The licensee shall carry out the operation of the pollution control dams and storm water management system according to the reports and design plans as approved by chief director.
- 7.12 All recovery dams and coal stockpile, effluent control dams, dirty water dams, ash dump, storm water dirty dams must be lined according to minimum requirements second edition 1998 to prevent water resource impact.
- 7.13 Storage area for dirty oils must be banded according to departmental minimum requirements to avoid contamination of groundwater.
- 7.14 Within 90 days after the completion of the activities referred here in accordance with the relevant provisions of this license. The licensee shall in writing under reference 16/2/7/B100/B/174 inform the regional head thereof. A signature of approval from their designer shall accompany the correspondence referred to above that the construction was done according to the design plans referred to in the report.
- 7.15 The licensee must ensure that the disposal of the ash and operation of the dump are done according to the provisions in the Kusile power station ash dump complex construction manual to prevent water pollution.
- 7.16 The licensee shall as well submit set of as-built drawings to the regional head after the completion of the ash dump.
- 7.17 The ash dams, and all other water management structures shall be operated and maintained to have a minimum freeboard of 0.8 metres above full supply level and all other water systems related thereto shall be operated in such a manner that it is always capable of handling the 1:50 year flood-event on top of its mean operating level.

- 7.18 All hazardous waste substances at the site must be accurately identified, adequately stored, and disposed appropriately.
- 7.19 All dams must be lined with synthetic material, 2mm HDPE with a cusped HDP leak detection layer sandwiched in-between.
- 7.20 The Licensee shall supply any information, drawings, specifications, design assumptions, calculations, documents and test results when requested by the Regional Head.
- 7.21 An approved professional person must be appointed to carry out a dam safety evaluation annually and must:
- 7.22 Consider whether the safety norms pertaining to the design, construction, monitoring, operation, performance and maintenance of the dam satisfy acceptable dam engineering practices, and
- 7.23 Compile a report on the matters contemplated above according to the prescribed requirements and submit the signed and dated report to the owner of the dam within the prescribed period.
- 7.24 The Licensee is not exempted from compliance with the provisions of the Regulations published under Government Notice R1560 of 25 July 1986, read with Chapter 12 of the Act.
- 7.25 The as-built plans and specifications of the dam(s) must be submitted to the Regional Head for his/her records within one (1) month of date of issuance.
- 7.26 Construction of the dam(s) may not commence before authorisation in terms of the National Environmental Act is issued.
- 7.27 Construction of the dam(s) may not commence unless the required authorisation to build has been issued by the Dam Safety Office of this Department.
- 7.28 An annual assessment of dam capacities and the risk to decant/pollution by storing water in dams must be annually assessed by a professional, independent, qualified civils engineer, geohydrologist and ecologist. The reporting is part of condition 3.3.1 of this licence.

[END OF LICENCE]