water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Private Bag X313, Pretoria, 0001, Sedibeng Building, 185 Francis Baard Street, Pretoria
Tel: (012) 336 7500 Fax (012) 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 Tsunduka Khosa** in my capacity as Acting Chief Director: Water Use Licence Management (CD: WULM) in the Department of Water and Sanitation and acting under the powers delegated to me by the Minister of Human Settlements, Water and Sanitation, hereby authorises the following water use in respect of this licence.

Electronic Signature Key : 5416260710717403031
Acting Chief Director: Water Use License Management (CD: WULM)
Date: Sep 2 2021 11:29AM

LICENCE NO: 01/A1042/ABCEFGI/5213 and 07/A42H/IIG/6425
FILE NO: 27/2/2/A942/27/9

1.	**Licensee:**	**Eskom Holding Soc Pty(Ltd): Medupi Power Station Northern Ash Dump Facility**
	Postal Address:	P O Box 1091 JOHANNESBURG 2000

2. Water Uses

2.1	Section 21(c) of the Act:	Impeding or diverting the flow of water in a water course, subject to the conditions set out in Appendices I and II
2.2	Section 21(i) of the Act:	Altering the bed, banks course or characteristics of a watercourse, subject to the conditions set out in Appendices I and II

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Acting CD: WULM

2.3 Section 21(e) of the Act: Engaging in controlled activity, subject to the conditions set out in Appendices I and III.

2.4 Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource, subject to conditions set out in Appendices VI

3. Properties is respect of which this licence is issued

3.1 Naawontkomen 509 LQ, Eenzaamheid 687LQ and Kuipersbult 511 LQ

4. Registered owners of the Properties

Eskom Holding SOC Pty (Ltd)

5. Licence and Review Period

This licence is valid for a period of twenty (20) years from the date of issuance and it may be reviewed at intervals of not more than five (5) years.

6. 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.

"The Provincial Head" means the Head of Provincial Operations: LPNW - Polokwane.

"Extent of the watercourse" means the outer edge of the 1:100 year floodline or the delineated riparian habitat, whichever is the greatest.

"Regulated area of a wetland" is the use of water for section 21 c and i water uses within 500m radius from the boundary of any wetland.

A wetland means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

The characteristics of a watercourse/s mean the flow regime, water quality, habitat (including the physical structure of the watercourse/s and associated vegetation) and biota found within the extent of the watercourse/s. The Resource Quality characteristics as defined in the National Water Act, 1998 (Act 36 of 1998).

7. Description of activity

This licence authorises Eskom Holdings Soc Pty (Ltd): Medupi Power Station for the water use in terms of section 21 (c), (e), (i) and (g) of the National Water Act, 1998 (Act 36 of 1998). The water use activities include: irrigation with water containing waste for the purpose of rehabilitation, the increase the height of the Northern Medupi Ash Dump Facility and amendments of the associated two PCDs, namely D3 and D3b within 500m buffer of pan. The activity is located in quaternary catchment A42J which falls within Limpopo Water Management Area.

APPENDIX I

General Conditions for the Licence

1. This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998).

2. The responsibility for complying with the provisions of the licence is vested in the Licensee and not any other person or body.

3. The Licensee must immediately inform the Provincial Head of any change of name, address, premises and/or legal status.

4. If the property in respect of which this licence is issued is subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Provincial Head within 60 days of the said change taking place.

5. If a Water User Association is established in the area to manage the resource, membership of the Licensee to the Association is compulsory. Rules, regulations and water management stipulation of such association must be adhered to.

6. The Licensee shall be responsible for any water use charges and/or levies imposed by a Responsible Authority.

7. While effect must be given to the Reserve as determined in terms of the Act, where a lower confidence determination of the Reserve has been used in issuance of this licence, the licence conditions may be amended should a higher confidence reserve be conducted.

8. 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.

9. The licence and amendment of this licence are also subject to all the applicable procedural requirements and other provisions of the Act, as amended from time to time.

10. The Licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Provincial Head within one month of the finalization of the audit.

11. The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Provincial Head within one month of the finalization of the audit.

12. Any incident that causes or may cause water pollution must be reported to the Provincial Head or a designated representative within 24 hours.

13. The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of / amongst other things.

    13.1 Shortage of water;
    13.2 Inundation of flood;
    13.3 Any *force majeur* event;
    13.4 Siltation of the river or dam basin; and

13.5 Required Reserve releases.

APPENDIX II

Section 21(c) of the Act: **Impeding or diverting the flow of water in a watercourse**
and
Section 21(i) of the Act: **Altering the bed, banks, course or characteristic of a watercourse**

1. GENERAL

1.1 This licence authorises Eskom Holding Soc Pty(Ltd): Medupi Power Station Northern Ash Dump Facility for Section 21(c) and (i) water use activities for the construction facilities as set out in Table 1.within quaternary catchment A42J and in the water use licence application reports submitted to the Department (refer condition 1.2):

Table 1: Water Use Activities

Water Use	Purpose	Infrastructure	Capacity m^3 or distance from the watercourse	Property Description	Coordinates
Section 21(c & i)					
Section 21(c&i)	Construction and Operation of Medupi Northern Ash Dump within 500m buffer of water resources and over the water resources (pans/depression points and semi-ephimeral washes)	NADF		Eenzaamheid 687 LQ	South 23°24'34.49" 23°43'20.15" 23°42'53.24" 23°42'16.39" East 27°30'10.48" 27°30'18.42" 27°32'32.02" 27°32'32.62
	Construction and operation of a Pollution Control Dam	D3	~55.17m	Eenzaamheid 687 LQ	23°43'14.55"S 27°31'37.59"E
	Construction and operation of a Pollution Control Dam within 500m buffer of the wetlands/depression systems	D3b	~244.99m	Eenzaamheid 687 LQ	23°42'32.69"S 27°30'54.53"E
	Pollution control dam encroaches within 1:100 year floodline due to ponding against the railway embankment.	D4	~189.83m	Eenzaamheid 687 LQ	23°43'29.24"S 27°30'36.38"E
	Operation of Transfer House 9	Ash Transfer House 9		Eenzaamheid 687 LQ	23°42'35.61"S 27°32'37.76"E

Acting CD: WULM

Water Use	Purpose	Infrastructure	Capacity m^3 or distance from the watercourse	Property Description	Coordinates
	and associated infrastructure (workshop, ash conveyor belt and substation) within 500 m of water resource (Pan/depression Point)				
	Operation of Coal Transfer House 1 and associated coal conveyor belt Coal Transfer House 1 Naauwontkomen 509 LQ				23°40'41.75"S 27°34'0.68"E

1.2. The Licensee must carry out and complete all the activities listed under condition 1.1 according to the following:

1.2.1 Reports submitted to the Department or the Provincial Head, specifically:

1.2.1.1 Biodiversity & Wetland Assessment by Natural Scientific Services CC dated January 2018;

1.2.1.2 Surface Water Impact Assessment and Baseline Report dated January 2018 by Golder Associates Africa (Pty) Ltd;

1.2.1.3 Integrated water and waste management plan (IWWMP) by Zitholele Consulting (Pty) Ltd dated October 2018;

1.2.1.5 Wetland Rehabilitation & Offsetting by Natural Scientific Services CC dated May 2018;

1.2.1.6 Hydrogeological specialist impact assessment by Golder Associates Africa (Pty) Ltd dated February 2018.

1.3 Conditions of this licence; and

1.4 Any other written direction issued by the Provincial Head in relation to this licence.

1.5 No activity must take place within the 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.

1.6 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.

1.7 A copy of the water use licence and reports set out under condition 1.2 of this Appendix must be on site at all times.

1.8 A suitably qualified person(s), appointed by the Licensee, and approved in writing by the Provincial Head, must be responsible for ensuring that the activities are undertaken in compliance with the specifications as set out in reports submitted to the Department or the Provincial Head and the conditions of this licence.

1.9 Buffers of 30m must be implemented between the wetland and the irrigation area and the pasture area.

1.10 Ecological class of rivers and wetlands (PES of B) must not to be lowered. Recommended Ecological Class (REC) for wetland must be set as class B.

1.11 A layout plan confirming that the 1:100 year floodline of the watercourse upstream of the dam wall do not affect any public property must be submitted to the Department within 30 days of issuance of water use licence.

2. FURTHER STUDIES AND INFORMATION REQUIREMENTS

2.1 For water use activities in Table 1:

2.1.1 Detailed design drawings of all the infrastructure of impeding and/or diverting flow of watercourses on the property must be submitted to the Provincial Head within three (3) months of date the issuance. The foregoing must indicate the regulated activities, marking the limits of disturbance in relation to the impacted watercourse; morphology of the watercourse; site specific impacts; and environmental management, particularly erosion and sediment, controls and measures;

2.1.2 No fundamental alterations of the site design plan(s) and drawings are allowed, unless a modification is requested and granted by the Provincial Head in writing; and

2.1.3 No site activities must occur beyond the proposed site location of the erosion and sedimentation controls and marked limits of disturbance.

2.2 If the Licensee is not the end user/beneficiary of the water use related infrastructure and will not be responsible for long term maintenance and management of the infrastructure, the Licensee must provide a programme for hand over to the successor-in-title including a brief management/maintenance plan and the agreement for infrastructure along with allocation of responsibilities, within three (3) months of the date of issuance of this licence.

2.3 An Environmental Management Plan (EMP) and rehabilitation plan for the decommissioning of any of the water use activities listed in Table 1 must be submitted five (5) years before commencing with closure to the Provincial Head for a written approval.

2.4 For all the activities listed under condition 1.1, Table 1, "as-built" plan(s) and engineering drawing(s) prepared by a registered professional engineer, must be submitted to the Provincial Head within three (3) months of the date of issuance of this licence. These plan(s) and drawing(s) must indicate the watercourse including wetland boundaries and layout and structure location(s) of all infrastructure a impeding and/or diverting flow of the watercourse as well as alterations to the watercourse on the property.

2.5 A Storm Water Management Plan must be updated and drawn up on A1 paper and submitted to the Provincial Head for written approval within 3 months of licence being issued. Clean water dirty water must be separated.

2.6 Storm Water management plan should be designed in a way that aims to ensure that post-development run-off does not exceed pre-development values in:

2.6.1 Peak discharge for any given storm,
2.6.2 Total volume of run-off for any given storm,
2.6.3 Frequency of run-off volumes,
2.6.4 Pollutant and debris concentrations reaching watercourses,
2.6.5 Demonstrate minimal soil and vegetation clearance practices,
2.6.6 Demonstrate an effective re-vegetation campaign for bare areas,
2.6.7 Velocity of outgoing storm water shall not exceed the velocities of incoming water in order to reduce erosion impacts, and
2.6.8 Increase in run-off due to a higher water table resulting from tree clearing practices.

3. PROTECTIVE MEASURES

3.1 Storm Water Management

3.1.1 Storm water management practices must be constructed, operated and maintained in a sustainable manner throughout the project and for the water use activities set out in condition 1.1 and must include but are not limited to the following:

3.1.1.1 Increased runoff due to vegetation clearance (promoting limiting vegetation clearance at all times) 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 watercourse(s);

3.1.1.2 Storm water must be diverted from construction works, access roads, linear infrastructure and reptile ponds and must be managed in such a manner as to disperse runoff and to prevent the concentration of storm water flow; and

3.1.1.3 The velocity of storm water discharges must be attenuated and the banks of the watercourses protected;

3.2 Structures and Materials

3.2.1 Necessary erosion prevention measures must be employed to ensure the sustainability of all structures.

3.2.2 The height, width and length of structures must be limited to the minimum dimension necessary to accomplish the intended function.

3.2.3 Structures must not be damaged by floods exceeding the magnitude of floods occurring on average once in every 100 years.

3.2.4 Structures must be non-erosive, structurally stable and must not induce any flooding or safety hazard.

3.2.5 Structures must be inspected regularly for accumulation of debris, blockage, erosion of abutments and overflow areas - debris must be removed and damages must be repaired and reinforced immediately.

3.2.6 Any access roads, bridges, pathways or other linear crossings should be:

3.2.6.1 Non-erosive, structurally stable and should not induce any flooding or safety hazard;
3.2.6.2 Any damage is repaired immediately to prevent further damage;
3.2.6.3 Non-polluting with respect to silt and litter that can be deposited into a watercourse;
3.2.6.4 Watercourse crossings to facilitate the movement of aquatic and non-aquatic organisms and fauna;
3.2.6.6 Crossing surfaces must be tarred, paved or concreted along the extent of the watercourse and extent at least 100m beyond the extent of the watercourse to minimise impacts on the characteristics of the watercourse;
3.2.6.7 Where any road is within the 100m buffer zone of the watercourse, this portion of the road shall be concreted, paved or tarred; and
3.2.6.8 Not consist of any polluting material.

3.2.7 Landscape maintenance plan must be submitted for approval by Provincial Head within 6 months of licence being issued.

3.3 Flow

3.3.1 The Licensee must determine flood lines (1:50 and 1:100 year) to ensure risks are adequately managed. Flood lines must be clearly indicated on the site plan(s) and drawings along with all wetland boundaries.

3.3.2 The activities must be conducted in a manner that does not negatively affect catchment yield, hydrology and hydraulics. 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.

3.3.3 Appropriate design and mitigation measures must be developed 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.

3.3.4 Structures must be designed in a way to prevent the damming of stream/river water and not impact on the flow of the water, during the construction and operational phases of all developments.

3.3.5 The development may not impede natural drainage lines.

3.3.6 The diversion structures may not restrict river flows by reducing the overall river width or obstructing river flow.

3.3.7 The characteristics of streambed are likely to be altered locally. In particular the rock and rubble created during the construction process is likely to have sharp edges, and not smooth surfaces that are typically associated with river rocks and pebbles. All rock and rubble must be removed from the watercourse once construction has been completed. Any rock placed in the watercourse to enhance the dissolved oxygen content of the water must adhere to the same criteria, namely only smooth rock surfaces to be placed within the watercourse.

3.3.8 The Licensee shall determine flow requirements for endemic aquatic organisms and the associated habitat (riparian and in-stream) by a registered, professional, independent and qualified aquatic ecologist and hydrologist within one (1) year after the issuance of this licence

and submit the report to the Provincial Head for a written approval. Reporting on the flow requirements as per condition 3.3.1 of this Appendix.

3.4 Riparian and Instream Habitat (Vegetation and Morphology)

3.4.1 Activities (including spill clean-up) must start up-stream and proceed into a down-stream direction, so that the recovery processes can start immediately, without further disturbance from upstream works.

3.4.2 Operation and storage of equipment must not take place within the 1:100 year flood line or delineated riparian habitat, whichever is the greatest unless authorised in this license.

3.4.3 Activities must not occur in sensitive riffle habitats.

3.4.4 Indigenous riparian vegetation, including dead trees, outside the limits of disturbance indicated in the site plans must not be removed from the area.

3.4.5 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 according to a respective management plan as formally approved by the Provincial Head in writing within one (1) month after the issuance date of this licence.

3.4.6 Existing vegetation composition must be maintained or improved by maintaining the natural variability in flow fluctuations. Rehabilitated areas shall have vegetation basal cover of at least 15% at all times.

3.4.7 Recruitment and maintaining of a range of size classes of dominant riparian species in perennial channels must be stimulated.

3.4.8 Encroachment of additional exotic species and terrestrial species in riparian zones must be discouraged.

3.4.9 Accumulation of woody debris on terraces by periodic flooding must be discouraged.

3.4.10 Existing flood terraces and deposition of sediments on these terraces to ensure optimum growth, spread and recruitment of these species must be maintained.

3.4.11 All reasonable steps must be taken to minimise noise and mechanical vibrations in the vicinity of the watercourse. Noise levels (noise resulting from the activities listed in Table 1 and associated activities) to be below 35dB from 18:00 – 06:00 daily.

3.4.12 Necessary erosion prevention mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent instream sedimentation.

3.4.13 Soils that have become compacted through the water use activities must be loosened to an appropriate depth to allow seed germination.

3.4.14 Slope/bank stabilisation measures must be implemented with a 1:3 ratio or flatter and vegetated with indigenous vegetation immediately after the shaping.

3.4.15 Stockpiling of removed soil and sand must be stored outside of the 1:100 flood line or delineated riparian habitat, whichever is the greatest, to prevent being washed into the river and must be covered to prevent wind and rain erosion.

3.4.16 The indiscriminate use of machinery within the instream and riparian habitat will lead to compaction of soils and vegetation and must therefore be strictly controlled.

3.4.17 The overall macro-channel structures and mosaic of cobbles and gravels must be maintained by ensuring a balance (equilibrium) between sediment deposition and sediment conveyance maintained. A natural flooding and sedimentation regime must thus be ensured as far as reasonably possible.

3.4.18 As much indigenous vegetation growth as possible should be promoted within the proposed development area in order to protect soil and to reduce the percentage of the surface area which is paved/hardened/compacted.

3.4.19 Run-off from paved/hardened/compacted surfaces should be slowed down by the strategic placement of berms.

3.4.20 The Licensee shall protect the banks of the watercourse against instability and erosion and ensure a healthy and sufficient bank side vegetation cover. A specific management program addressing this concern shall be developed by a professional, qualified, independent and registered ecologist and aquatic specialist and submitted to the Provincial Head for written approval within three (3) months after the issuance of this licence.

3.4.21 Plant Species Plan must be drawn up in conjunction with a landscape architect or botanist and approved by Provincial Head and implemented within 6 months of licence being issued.

3.5 Biota

3.5.1 The Licensee must take all reasonable steps to allow movement of aquatic species, including migratory species. The Licensee shall appoint a professional, qualified, independent and registered ecologist and aquatic specialist to determine the impact of the weirs on aquatic biota migration and submit a report for written approval to the Provincial Head within six (6) months after the issuance of the licence. The Licensee shall implement the recommendations endorsed by the Provincial Head. Reporting on biota component must be captured separately in the reporting requirement of condition 5.1 of Appendix II. The report must also assess the reintroduction of endemic aquatic species in this environment (note condition 5.1 REC value).

3.5.2 All reasonable steps must be taken not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.

3.5.3 The current level of diversity of biotopes and communities of animals, plants and microorganisms must be maintained.

4 REHABILITATION AND MANAGEMENT

4.1 The Licensee must embark on a systematic long-term rehabilitation programme to restore the watercourse to environmentally acceptable and sustainable conditions, which must include, but not be limited to the rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem.

4.2 All disturbed areas must be re-vegetated with an indigenous seed mix in consultation with an indigenous plant expert, ensuring that during rehabilitation only indigenous shrubs, trees and grasses are used in restoring the biodiversity.

4.3 An active campaign for controlling invasive species must be implemented within disturbed zones to ensure that it does not become a conduit for the propagation and spread of invasive exotic plants.

4.4 Rehabilitation must be concurrent with construction.

4.5 Topsoil must be stripped and redistributed.

4.6 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.

4.7 The Provincial Head must sign a release form indicating that rehabilitation was done satisfactory according to specifications as per this license.

4.8 A photographic record must be kept as follows and submitted with reports as set out in section 5:

4.8.1 Dated photographs of all the sites to be impacted before construction commences;

4.8.2 Dated photographs of all the sites during construction on a monthly basis; and

4.8.3 Dated photographs of all the sites after completion of construction, seasonally.

4.9 Rehabilitation structures must be inspected regularly for the accumulation of debris, blockages instabilities and erosion with concomitant remedial and maintenance actions.

4.10 Rehabilitation Plan must be updated and drawn on a drawing for approval by provincial Head within 6 months of licence being issued.

4.11 Experienced environmental rehabilitation personnel as well as the correct equipment for environmental rehabilitation must be available.

5 MONITORING AND REPORTING

5.1 A comprehensive and appropriate environmental assessment and monitoring programme to determine the impact, change, deterioration and improvement of the aquatic system associated with the activities listed under condition 1.1 and other existing activities as well as compliance to these water use licence conditions must be developed and submitted to the Provincial Head for a written approval before commencement and must subsequently be implemented

5.2 Six (6) monthly monitoring reports for Groundwater and surface water must be submitted to the Provincial Head until otherwise agreed in writing with the Provincial Head.

5.3 A qualified and responsible scientist must be retained 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 on the property as set out in condition 1.1.

5.4 The Licensee shall conduct an internal and external audit as per condition 11 and 12 of Appendix 1 and the audit report must include:

5.4.1 Reporting in respect of the monitoring programme referred to in condition 5.1 of Appendix II and all other reporting and compliance conditions outlined in this licence;
5.4.2 A record of implementation of all mitigation measures including a record of corrective actions; and
5.4.3 Compensation measures for damage where mitigation measures have failed to adequately protect the in-stream and riparian habitat or any other characteristic of the watercourses.

5.5 The Licensee must apply in writing to the Provincial Head for alternative reporting arrangements for which written approval must be provided.

5.6 A comprehensive ground water and surface water monitoring and remediation plan must be provided within 6 months of licence being issued. Such plan must detail how the possible pollution effects from the dirty water impoundment facilities that do not have a barriers system that complies with the requirements of the current Regulations will be remediated and how future pollution from the same facilities will be prevented, in accordance with the requirements of section 19 of the National Water Act (1998).

6 OTHER WATER USERS

6.1 The Licensee must attempt to prevent adverse affect on other water users. All complaints must be investigated by a suitable qualified person and if investigations prove that the Licensee has impaired the rights of other water users, the Licensee must initiate suitable compensative measures.

7. POLLUTION PREVENTION, INCIDENTS AND MALFUNCTIONS

7.1 If surface and/or groundwater pollution has occurred or may possibly occur, the Licensee must conduct, and/or appoint specialists to conduct necessary investigations and implement additional monitoring, pollution prevention and remediation measures to the satisfaction of the Provincial Head.

7.2 The Licensee shall keep all records relating to the compliance or non-compliance with the conditions of this licence in good order. Such records shall be made available to the Provincial Head within 14 (fourteen) days of receipt of a written request by the Department for such records.

7.3 The Licensee shall keep an incident report and complaints register, which must be made available to any external auditors and the Department.

8 BUDGETARY PROVISIONS

8.1 The water user must ensure that there is a budget sufficient to complete and maintain the water use and for successful implementation of the rehabilitation programme as set out in this licence.

8.2 The Department may at any stage of the process request proof of budgetary provisions for rehabilitation and closure of project.

APPENDIX III

Section 21 (e) of the Act: Engaging in a controlled activity; irrigation of any land with waste or water containing waste

1. QUANTITY OF WATER CONTAINING WASTE FOR IRRIGATION

1.1 This licence authorises Eskom Holding Soc Pty (Ltd): Medupi Power Station Northern Ash Dump Facility as detailed in Table 2.

Table 2: Water use activities

Water Use	Purpose	Infrastructure	Capacity m^3 or distance from the watercourse	Property Description	Coordinates
Section 21(e)					
Section 21(e)	Irrigation with water containing waste for the purpose of rehabilitation	NADF	1600 m^3/day	Eenzaamheid 687 LQ	South 23°24'34.49" 23°43'20.15" 23°42'53.24" 23°42'16.39" East 27°30'10.48" 27°30'18.42" 27°32'32.02" 27°32'32.62"

1.2 The quantity of wastewater authorised to be irrigated in terms of this licence must not be exceeded.

2. CROP TYPE AND AREA IRRIGATED

2.1 This licence authorises to irrigate for the purpose of rehabilitation

3. QUALITY OF WATER TO BE IRRIGATED.

The quality of the waste water to irrigate with must not exceed special effluent standard (GNR 10 991) detailed in Table 3.

Table 3: Quality of waste water to irrigate

Parameter	Limits
Ph	5.5-9.5 pH
Electrical Conductivity	70 mS/m
Suspended solids	25 mg/l
Chemical oxygen demand (COD)	75 mg/l
Orthophosphates (as Ortho-P)	10 mg/l
Nitrate (as N)	15 mg/l

Ammonia (as N)	6 mg/l
E.coli (counts/100ml)	150 mg/l

4. MONITORING

4.1 Quantity

4.1.1 The quantity of water containing waste irrigated must be metered and recorded daily.

4.1.2 Monitoring for the quantity of the water containing waste for irrigation must be done at the point where the effluent is piped into the irrigation dam.

4.1.3 Water quantity measuring, recording and integrating devices must be maintained in a sound state of repair and calibrated by a competent person at intervals of not less than two years. Calibration certificates must be available for inspection by the Provincial Head or his/her representative upon request.

4.2 Quality

4.2.1 Monitoring points for quality must be at the outlet point of the irrigation dam where the wastewater will be abstracted for irrigation.

4.2.2 The date, time and monitoring point in respect of each sample taken must be recorded together with the results of the analysis.

4.2.3 Monitoring points must not be changed prior to notification to and written approval by the Head of Provincial Operation.

4.2.4 The samples taken at outlet point of the irrigation dam shall be analysed for the variables at the following required frequencies:

Table 4: Monitoring variables and frequency

Variable	Frequency
Ph	Monthly
Electrical Conductivity (EC) (ms/m)	Monthly
Chemical oxygen demand (COD) (mg/l)	Monthly
Faecal Coliforms(as FCU)(count/100ml)	Monthly
Ammonia (as N) (mg/l)	Monthly
Nitrate (as N)(mg/l)	Monthly
Ortho-Phosphate (as P) (mg/l)	Monthly
Suspended solids (mg/l)	Monthly

4.3 Ground water monitoring shall be undertaken as set out in condition 4.2 of Appendix III.

5. GENERAL IRRIGATION PRACTICES

5.1 Irrigation shall be practiced in accordance with the guidelines prescribed in the document titled "*Guide: Permissible Utilisation and Disposal of Treated Sewage Effluent*", issued by the former Department of Health under reference 11/2/5/3 and dated 30 May 1978, or in accordance with any relevant regulations promulgated under section 26 of the Act.

5.2. Irrigation with waste shall be practiced in a systematic manner and precautions shall be taken so as to prevent -

5.2.1 Water logging and pooling of waste in any location
5.2.2 Pollution of underground water or surface water due to seepage or otherwise
5.2.3 Fly breeding, public health hazard, odour or secondary pollution
5.2.4 Runoff from the irrigation area because of wet weather or any other conditions whatsoever and
5.2.5 The site of the irrigation area shall be adequately fenced to prevent the entry of animals and unauthorised persons.

5.3 Notices manufactured of durable weatherproof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing purposes shall be displayed at prominent places along the fence and at entrance gates. Such notices shall be worded in the official languages applicable in the area.

6. PIPELINES

6.1 Pipelines used for the conveyance of waste shall be painted in a conspicuous colour or manufactured of a coloured material distinctly different from the colour of the pipelines in which drinking water is flowing to avoid the possibility of any cross-connections of the different pipelines.

6.2 All stop-valves and taps on the pipelines conveying the effluent shall be of a type that can be opened and closed by means of a loose wrench. This wrench shall be in the safekeeping of a responsible member of the staff to prevent unauthorised use thereof.

6.3 Notices manufactured of a durable weatherproof material warning against the use of water containing waste for drinking and washing purposes shall be displayed at prominent places where the waste is being reused and at all taps. Such notices shall be worded in the official languages applicable in the area.

APPENDIX VI

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

1 QUANTITY OF WASTE TO BE DISPOSED

1.1 This Licensee is authorised to dispose ash and wastewater in to the Northern Ash Dump Facility and Pollution Control Dam, in terms of water uses activities detailed in Table 5.

Table 5: Water use activities

Water Use	Purpose	Infrastructure	Capacity m^3 or distance from the watercourse	Property Description	Coordinates
Section 21(g)					
Section 21(g)	Disposal of Ash at the Medupi Northern ADF to a maximum height of 72m (4-20 year)	NADF	193315105 m^3	Eenzaamheid 687 LQ	South 23°24'34.49" 23°43'20.15" 23°42'53.24" 23°42'16.39" East 27°30'10.48" 27°30'18.42" 27°32'32.02" 27°32'32.62
	Dust suppression of the Medupi Northern ADF using water containing waste	NADF	3300 m^3	Eenzaamheid 687 LQ	South 23°24'34.49" 23°43'20.15" 23°42'53.24" 23°42'16.39" East 27°30'10.48" 27°30'18.42" 27°32'32.02" 27°32'32.62
	PCD around NADF to capture dirty storm water	D3	260 000 m^3	Eenzaamheid 687 LQ	South 23°43'14.21" 23°43'05.09" 23°43'10.24" 23°43'19.24 East 27°31'23.02" 27°31'55.01" 27°31'56.71" 27°31'24.78"
	PCD around NADF to capture dirty storm water	D3b	55 000 m^3	Eenzaamheid 687 LQ	South 23°42'31.54" 23°42'29.00" 23°42'33.25" 23°42'35.73" East

Water Use	Purpose	Infrastructure	Capacity m^3 or distance from the watercourse	Property Description	Coordinates
					27°30'48.38" 27°30'59.64" 27°31'00.69" 27°30'49.37"

1.2 The quantity of waste/wastewater authorised to be disposed of in terms of this licence must not be exceeded.

2.2. Groundwater Monitoring

2.2.1 The Licensee shall conduct ground water monitoring on a quarterly basis for the variables shown in Table 6 and the results must be submitted to the Provincial Head.

Table 6: Monitoring Frequency

Variables	Frequency
Electrical Conductivity (mS/m)	Quarterly
Sodium (mg/l)	Quarterly
Magnesium (mg/l)	Quarterly
Calcium (mg/l)	Quarterly
Chloride (mg/l)	Quarterly
Sulphate (mg/l)	Quarterly
Nitrate (mg/l)	Quarterly
Fluoride (mg/l)	Quarterly
pH	Quarterly
Ecoli	Count/100ml
Ortho-Phosphate (as P) (mg/l)	Monthly
Ammonia (as N) (mg/l)	Monthly

2.2.2 Monitoring network must be set up as an early warning system to detect any polluted seepage that might occur from the wastewater system.

2.2.3 If ground water pollution have occurred or may possibly occur, the Licensee must conduct necessary investigations and implement additional monitoring and rehabilitation measures which must be to the satisfaction of the Provincial Head.

3. STORMWATER

3.1 Storm water leaving the Licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas of a combination thereof which is produced, used, stored dumped of spilled on the premises.

3.2 Increased runoff due to vegetation clearance and 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 streams.

3.3 The Licensee shall ensure that no stormwater will ingress into the wastewater system and that no wastewater ingress into the stormwater system.

3.4 Wastewater impoundments must be designed, constructed and managed to ensure that there is sufficient capacity to contain the 1:50 year flood event, with a minimum of 0.8 m freeboard. Freeboard will be defined as the difference between the water level and the crest of the overflow.

3.5 Wastewater systems must be properly maintained on a continuous basis.

3.6 Storm water shall be diverted from the impoundments and roads and shall be managed in such a manner as to disperse runoff and to prevent the concentration of the stormwater flow.

3.7 Cut-off drains shall be provided around the properties to prevent storm-water ingress into the surrounding of the works. These drains shall be designed to contain the maximum runoff, which could be expected over a period of 24 hours with a frequency of once in every 20 years.

3.8 The Licensee shall conduct regular inspections upstream to ensure that stormwater does not ingress into the wastewater system.

4. MALFUNCTIONS/ABNORMAL CONDITIONS

4.1 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.

4.2 The records shall be tabulated under the following headings with a full explanation of all the contributory circumstances:

4.2.1 Operating errors
4.2.2 Mechanical failures (including design, installation or maintenance)
4.2.3 Environmental factors (e.g. floods)
4.2.4 Loss of supply services (e.g. power failure)
4.2.5 Other causes

4.3 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 taken to:

4.3.1 Correct the impacts resulting from the incident;
4.3.2 Prevent the incident from causing any further impacts; and
4.3.3 Prevent a recurrence of a similar incident.

4.4 The Licensee must notify by the Provincial Head within 24 hours of the occurrence or potential occurrence of any incident which has the potential to cause, or has caused water and environmental pollution, health risks or which is a contravention of the licence conditions

5. CONTINGENCY PLANS AND INCIDENT REPORTING

5.1 The Licensee must develop and implement an Emergency and Contingency Plan.

5.2 The Licensee must implement and promote an environmental call and reporting centre where the following can be reported:

5.2.1 Illegal disposals of waste and/or littering;
5.2.2 Broken, ruptured or leaking pipelines wasting potable water;
5.2.3 Open or leaking taps on the property of the Licensee;
5.2.4 Open manholes;
5.2.5 Leaking or broken sewerage lines and pipes;
5.2.6 Overflowing manholes and pump stations;
5.2.7 Possible offenders of any environmental regulations, by-laws and/or ordinances; and
5.2.8 Any other aspect that might hamper the effective management of the water resources.

5.3 The Licensee must compile an environmental call and reporting centre protocol, that must be included in the Plan, and which will investigate every complaint within 24 hours of it being reported.

5.4 The Licensee must rectify all valid issues reported within 7 days of the issue being reported to the Licensee. All incidents shall be recorded in an incident register which will include reasons for non-rectification of issues raised.

5.5 Statistical summary of malfunctions and incidents shall be included in the Annual Report.

6. ACCESS CONTROL, FENCING AND NOTICES

6.1 The sites must be adequately fenced to prevent entry of animals and unauthorised persons.

6.2 Strict access procedures must be followed in order to gain access to property. Access must be limited to authorised employees of the Licensee and their Contractors only.

6.3 Notices manufactured of durable weatherproof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing purposes must be displayed at prominent places along all fences and at entrance gates. Such notices must be worded in the official languages applicable in the area.

END OF LICENCE