

01/21/2025



KELVIN POWER STATION: IWUL EXTERNAL AUDIT REPORT 2024

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Executive Summary

Site		Kelvin Power Station: IWUL Internal Audit	
General Information		Site visit data	
Street:	3 Zuurfontein	Date of visit	10 December 2024
City:	Kempton Park		Nimrod Mkhali
Postal code:	1619	Authorization details	
General site description Kelvin Power Station located at 3 Zuurfontein, Kempton Park, Johannesburg, Gauteng, 1619. The site received authorization under Section 21 of the National Water Act (1998) for the following three activities that are triggered in the legislation: Section(f): Discharging of waste or water containing waste into a water resource, Section 21(g): Disposing of water in a manner which may detrimentally impact the water resource and Section 21(h): Disposing of water in a manner that has been heated.		License number	03/A21C/FGH/1110
		Holder of authorization	Kelvin Power (Pty) Ltd
		Department	Department of Water and Sanitation
		Province	Gauteng
		GPS Co-ordinates	23°51'12.12" S 29°23'51.92" E
		Overall performance	
		Fully Compliant	87
		Non-compliant	7
		Insufficient evidence	3
		Total Requirements (Excl. N/A)	19
		Total % compliance	91.2%
Key compliance findings and observations			
- The site was found to be 91.2% compliance with the condition of the WUL - Some parameters exceed the quantities specified in table 2 of the WUL. - No proof that internal and external audit reports were submitted to the regional head			

1. Introduction

Kelvin Power (Pty) Ltd (KPS) appointed Dihlashana Consulting Corporation to conduct an external water use license compliance audit at Kelvin Power Station (The site), located at 3 Zuurfontein, Kempton Park, Gauteng Province, 1619, within the jurisdiction of Ekurhuleni Metropolitan Municipality. Kelvin Power Station was issued with a Water Use License under Section 21 of the National Water Act (1998) for the following triggered activities listed in table 1 below.

Table 1: Authorised Activities in terms of S 21 of NWA

NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) SECTION TRIGGERED	LICENSED ACTIVITY	ACTIVITY LOCATION
S 21 (f)	Discharging of waste or water containing waste into a water resource.	Zuurfontein 33IR
S 21 (g)	Disposing of water in a manner which may detrimentally impact on a water resource.	Zuurfontein 33IR
S 21(h)	Disposing of water in a manner that has been heated.	Zuurfontein 33IR

The objective for this audit was to monitor and report on the compliance status of Kelvin Power Station to the conditions stated in the approved IWUL. This audit report is done in order to fulfil the requirements of IWUL in line with condition 9.1 of the Water Use License (License No. 03/A21C/FGH/1110 granted by Department of Water and Sanitation on 24 June 2011.

The audit report will cover as a minimum the following:

- the scope of the assessment;
- the procedure used for the assessment;
- the evaluation criteria used during the assessment;
- review of the previous audit report
- the results of the 2024 audit; and
- recommendations.

This report has been prepared for kelvin Power (Pty) Ltd by Dihlashana and documents the results of the IWUL external audit conducted at Kelvin Power Station therefore will be known as Kelvin Power Station: IWUL External Audit Report 2024.

2. Consultant Details

Company		
	Dihlashana Consulting Corporation (Pty) Ltd	
	Compiled By: Nimrod Mkhalihi <u>Category Professional Membership</u> International Association Impact Assessment South Africa (IAIASa)	Approved By: Dipitseng Manamela <u>Category Professional Membership</u> - SACNASP: Pr. Sci. Nat - National Association of Clean Air (NACA) - Network for Industrially Contaminated Land in Africa (NICOLA)
Qualifications	- AdvDip. (Environmental Sciences) - BP Passport Training - BP COW training - Engen PTW - First Aid Level 1 - Fire Fighting Level 1	- MSc. (Environmental Sciences) - Programme and Project Management - Management Advanced Programme - Certificate in Safety Management
Contact Details	Office: 011 254 4800 Email: nimrod.mkhalihi@dihlashanana.co.za	Office: 011 254 4800 Cell: 072 899 3300 Email: dipitseng@dihlashana.co.za
Experience	4+ yrs. in Environmental Management in the industry of waste management and Petro-chemical management.	20 yrs. in Environmental and Safety Management in the oil industry and government department.
Expertise	- Legal Compliance Audits - Permit Audits - Safety Audits - Report Writing	- Project Management - Legal Compliance audits - Permit Audits - Safety Audits - Report Writing

3. Declaration of Independence

I, Dipitseng Maropeng Manamela as duly authorised representative of Dihlashana Consulting Corporation (Pty) Ltd., hereby confirm my independence as well as that of Dihlashana Consulting Corporation and declare that neither I nor Dihlashana Consulting Corporation have any business, financial, personal or other interest other than fair remuneration for work performed. I further declare that there is no conflict of interest in compiling this report.



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4. Site Information

4.1 Site Contact Details

The Environmental manager for the site is **Lavhelesani Nelwamondo** contactable at:

Tel: 011 573 2500

Cell: 073 278 9684

Email: Lavhelesani.Nelwamondo@kelvinpower.com

5. Audit Information

Auditor's Details:	1. Nimrod Mkhaliphi 2. Lehlogonolo phaleng
Auditee	1. Lavhelesani Nelwamondo 2. Maria Masemola
Date:	10 December 2024
Site:	Kelvin Power Station
Scope:	Kelvin Power Station Water Use License External Audit: License No.: 03/A21C/FGH/1110

5.1 Audit Methodology and Approach

The methodology followed in conducting the audit is as follows:

- Development of an audit checklist to assess level of compliance with each condition of the Water Use License
- Site walk about within the facility
- Review of the Previous Year Audit Findings

- Document review
- Interviews and discussions with key personnel
- In cases where there is no evidence of compliance; the auditee shall provide such information within 5 days of the audit; failure to provide such information will lead to non-compliance with the specific condition.
- Compilation of the Audit Report and submission to Kelvin Power (Pty) Ltd.

Notes:

- This is a Water Use Licence Compliance Audit and will thus ask question/assess how the license conditions have been complied with as well as plans in place to improve where there is non-compliance with conditions
- Dihlashana Consulting Corporation will not be submitting this report to the licensing authority unless approved by kelvin Power (Pty) Ltd.
- Dihlashana assumes that it has been provided with all the relevant project information that is correct and valid at the time it was provided.

5.1.1 Audit Opening Meeting

The audit team visited the site on 10 December 2024 and held an opening meeting for introductions and the purpose of the audit to be undertaken, before conducting a site walk of the power station. A register was circulated and signed by all involved in the audit. The audit team was introduced and the scope of their responsibilities was outlined to the auditee. The purpose, scope, methodology and scoring system to be adopted for the audit was discussed as outlined in **5.1** above and **5.2** below.

5.2 Scoring System

- All conditions are regarded as of equal importance.
- The following scoring system and colour coding shall apply:

Score	Definition	Description
1	Full Compliance	All requirements of the condition are met
0.5	Insufficient Evidence	Not enough evidence provided during the visit
0	Non-Compliance	Condition requirements not met
N/A	Not applicable	Compliance with the condition cannot be assessable

Calculating the final score shall be expressed as a percentage as follow:

$$\text{Overall Audit Score (Percentage)} = (\text{audit score achieved} / \text{Total Audit score}) * 100$$

Where –

Audit Score Achieved = Sum of Audit Scores at Each Compliance

LevelTotal Audit Score = Total Points allocated to the overall audit

5.2.1 Audit Closing Meeting

A meeting was held after the formal audit (site inspection, interviews and some documents review). The audit team and the auditee discussed key findings and observations.

6. Inspected Areas

A site walkabout on the water use activities was conducted by Nimrod MkhaliPhi and Lehlogonolo Phaleng together with Lavhelesani Nelwamondo on site to take us through the power station and answer questions. The areas inspected include but not limited to:

- Boreholes.
- Ash dams.
- Return water and desilting dam
- Stormwater channels.
- Meters.
- Rehabilitated areas
- Waste storage area

7. Reviewed Documents

The WUL and the following documents were reviewed prior, during and after the site audit:

1. Water Use License
2. Stormwater plans.
3. IWWMP and RSIP
4. Previous audit reports
5. Emergency and Evacuation Plan
6. Discharge water limits
7. Emergency monitoring procedure
8. Emergency response plan.
9. Groundwater monitoring report.
10. Water balance report

11. Bio-Monitoring Report

12. Ash dam instructions manual

8. Audit Results and Findings

This section of the report describes the audit results and findings and is structured as follows:

- a. General Observations
- b. Checklist Outcomes.

8.1 Review of the Previous Year findings

This section of the report assesses the non-compliances identified in the 2023 audit and how they were closed. The summary of findings are presented in the table below.

Item	Description	2023 Comments	Current Compliance Status	2024 Comments
	Conditions			
	If a water user association is established in the area to manage the resource, membership of the Licensee to this association is compulsory.	The minutes of the Jukskei River Catchment management forum were provided as proof that there is an existing water user association in the area. However, the minutes does not constitute attendance of KPS to the water user association as the minutes were not accompanied by the attendance register or membership of KPS to the association KPS must provide proof of attendance to the Jukskei River Catchment forum in a form of attendance register or proof of membership to the forum.	C	Kelvin Power station attended a meeting from Hennops river catchment Management Forum, which is identified as local water user association. Proof of attendance provided
	The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit must be conducted within 3 (three) months of the date this licence and a report on the audit shall be submitted to the Regional Head within one month of finalisation of the report	No proof was provided to indicate that an external auditor was appointed with the first audit to have undertaken within 3 (three) months of the date this licence. KPS must write a letter to the regional head of the relevant authority to request an exemption to this condition as it is a historic once off condition that will not be rectified. As many of the historic documents are not available.	C	Annual external audits are being conducted by independent auditors. Previous audit reports were observed.

	The construction and forth coming operation of the Ash dams (A and B) and return water dams shall be carried out under the supervision of the professional Civil Engineer, registered under the Engineering profession of South Africa Act, 1990 (Act, 114 of 1990) as approved by the designer.	Whilst it was indicated by the auditee that the construction of the ash dams (A and B) and return water dams were complete prior the issuance of the WUL (The Ash dams were constructed in the 1960's). However, the no evidence was provided in terms of the CV and qualifications of the Civil Engineer, registered under the Engineering profession of South Africa appointed to monitor operation of the activities. KPS must provide details (CV) of the Civil Engineer as per the condition who is task to monitor operation activities.	C	The operation of the Ash dams and return dams are carried out under the supervision of the Professional Civil Engineer registered, under the Engineering profession of South Africa Act, 1990 (Act, 114 of 1990). CV was provided at the time of the audit.
	The operation of the existing Ash Dam facilities and return water dams shall be carried out under supervision of a professional Civil Engineer, registered under Engineering profession of South Africa, 1990 (Act 114 of 1990) as approved by the designer.	Even though the facility was constructed in the 1960's, no proof of the in terms of CV and qualifications of a designated civil engineer who is task to supervise the operation of the existing ash dams (A and B) and return da water dams registered under Engineering profession of South Africa Act, 1990 (Act, 114 of 1990) as approved by the designer. KPS must provide details (CV) of the Civil Engineer as per the condition who is task to monitor operation activities.	C	The operation of the Ash dams and return dams are carried out under the supervision of the Professional Civil Engineer registered, under the Engineering profession of South Africa Act, 1990 (Act, 114 of 1990). CV was provided at the time of the audit.

	The quality of the water containing waste disposed of into the return water dams shall not exceed the qualities specified in table 2 below:	Kelvin Power currently analyses the following water quality parameters: pH, Electrical Conductivity, Suspended Solids, Phosphate, Nitrate, Free Residual Chlorine, Ammonia, Sulphate, Calcium, Magnesium, Chemical Oxygen Demand, Sodium, Chloride and Fluoride. The average wastewater quality for the following parameters: Electrical Conductivity, Phosphate, Nitrate, Free Residual Chlorine, Ammonia, Calcium, Magnesium, Chloride and Fluoride exceeded the stipulated limits as indicated in Table 2. KPS must adhere to the specific recommendations as stipulated in the surface water quality report by Clean Stream Biological Services Pty Ltd.	NC	Some parameters are exceeding the quantities specified in table 2 of the WUL.
	No industrial wastewater or water containing waste shall be discharged to the Moddefontein spruit, except for the discharges as authorised in the conditions specified in the license.	The average wastewater effluent water quality for the following parameters: Electrical Conductivity, Phosphate, Nitrate, Free Residual Chlorine, Ammonia, Calcium, Magnesium, Chloride and Fluoride exceeded the stipulated limits as indicated in Table 2. KPS must adhere to the specific recommendations as stipulated in the surface water quality report by Clean Stream Biological Services Pty Ltd.	NC	Some parameters are exceeding the quantities specified in table 2 of the WUL.

	The Licensee shall submit the results of analysis for the monitoring requirements to the Regional Head on an annual basis under reference number 16/2/7/A210/B1	No proof was provided to show that the results of analysis for the monitoring requirements were submitted to the regional head on an annual basis under reference number 16/2/7/A210/B1.	C	Proof of submission for analytical results to the Regional Head was provided at the time of the audit dated 13/11/2024
	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 or a combination thereof which is produced, used, stored, dumped or spilled on the premises.	The average wastewater effluent water quality for the following parameters: Electrical Conductivity, Phosphate, Nitrate, Free Residual Chlorine, Ammonia, Calcium, Magnesium, Chloride and Fluoride exceeded the stipulated limits as indicated in Table 2. KPS must adhere to the specific recommendations as stipulated in the surface water quality report by Clean Stream Biological Services Pty Ltd.	NC	Some parameters are exceeding the quantities specified in table 2 of the WUL.
	Pollution caused by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all stream crossings.	The rehabilitation strategy and implementation plan has shown that conveyor belts often spill coal onto the ground due to ageing infrastructure. Evidence of coal residue near the conveyor belt were observed, these spills are often cleaned by KPS as evidence at the time of the audit.	PC	At the time of the audit, there was no evidence that the Conveyors were designed in a way such to have prevent spills; however none of the conveyors crosses the stream or goes connects to a different facility. All conveyors are within the boundary of Kelvin Power facility.

8.2 Review of this year's Findings

8.2.1 General Observations

During the site walk, there were no visible environmental negligence around the site. The dams are still in good condition and all the notices preventing unauthorised entry are displayed. The overall housekeeping of the site was in order and seemed to be regularly maintained. At the time of site walk no areas of potential concerns could be identified

8.2.2 Check List Outcome

The table below summarises the conditions in the license and was developed as an audit protocol. The numbering used in the table are to match the exact condition in the Water Use License.

Item	Requirement	Compliance Status C/NC/PC/N/A	Comments	Score
Confirmation of Water Use Activities				
2.1	Section 21 (f)	C	Discharge into the Modderfontein Spruit was confirmed to correspond with S21(f) as per the license activities being applied for	1
2.2	Section 21 (g)	C	Ash Dam A and Ash Dam B were confirmed to be activities corresponding with S21(g) as per the license activities being applied for	1
2.3	Section 21 (h)	C	During the site visit, it was established that heated water from the plant is discharged into the desilting dam and eventually to the return dam. This activity was confirmed to correspond to S21(h) as per the license activities being applied for	1

Appendix I - General Conditions for the licence				
1.	The license is subject to all applicable provisions of the National Water Act	N/A	Noting	-
2.	The responsibility for complying with the provisions of the licence is vested in the licensee and not any other person	N/A	Noting	-
3.	Has there been a name change, address, premises or legal status?	C	It was indicated that no changes done as per the condition	1
4.	Has the facility been sub-divided?	C	No sub-division done	1
5.	Are you aware of any water user association in your area? Do you belong to that water user association?	C	Kelvin Power station attended a meeting from Hennops river catchment Management Forum, which is identified as local water user association. Proof of attendance provided	1
6.	The licensee is responsible for any water charges or levies imposed by the authorities	N/A	Noting	-
7.	Should the Department finalise the reserve determination, the outcome of which will be affected to the license	N/A	Noting	-
8.	When compulsory licensing is implemented for the water resource in respect to which this water use is issued, the water use authorized in this license could be subject to appropriate reduction	N/A	Noting	-
9.	The license shall not be construed as exempting the Licensee from compliance with the provisions of any other applicable Act, Ordinance, Regulation or by-law	N/A	Noting	-
10.	The Licence and amendment of this license are also subject to all the applicable procedural requirements and other applicable provisions of the Act, as amended from time to time.	N/A	Noting	-
11.	Has the licensee conducted the 2024 annual internal audit?	C	The audit was conducted in October 2024 by Kelvin Power. Report was provided as proof at the time of the audit.	1
	Has the report been submitted to the Regional Head within one month of completion?	NC	No evidence of submission was provided to the Regional Head.	0

12.	Has the licensee conducted the 2024 annual external audit?	C	Dihlashana was appointed to conduct the 2024 external audit.	1
	Has the report been submitted to the Regional Head within one month of completion?	C	The report will be submitted to the Regional Head upon completion.	1
13.	Is the flow metering, recording and integrating devices maintained and kept in sound state of repair and calibrated by a competent person at intervals of not more than two years? Calibration Certificates?	C	Calibration certificates by Hach Pty Ltd were provided at the time of the audit. Valid until Jun 2025	1
14.	Any incident that causes or may cause water pollution shall be reported to the regional head within 24 hours	N/A	Noting	-
Appendix II – Construction and Operation				
1.2	The construction and forth coming operation of the Ash dams (A and B) and return water dams shall be carried out under the supervision of the professional Civil Engineer, registered under the Engineering profession of South Africa Act, 1990 (Act, 114 of 1990) as approved by the designer.	C	The operation of the Ash dams and return dams are carried out under the supervision of the Professional Civil Engineer registered, under the Engineering profession of South Africa Act, 1990 (Act, 114 of 1990). CV was provided at the time of the audit.	1
1.4	The Licensee must ensure that the disposal of the ash, disposal of wastewater and operation maintenance of the system are done according to the provisions in the report.	C	Disposal of ash and wastewater is according to the report.	1
1.6.2	The licensee shall implement the following erosion protection measures at the ash dumps			
1.6.3	Are the slopes of the Ash damp residue and beams vegetated as soon as practically possible with appropriate seed mix?	C	Slopes are vegetated. Condition was observed on site at time of the audit.	1
1.7	Has the licensee established an Ash Dump residue deposit management system?	C	Ash dam operating instructions manual available.	1
	Does the management system have a policy?	C	The ash dam operating instruction manual was provided as evidence and SHEQ management system.	1

	Setting of objectives and targets?	C	Objectives and targets are clearly stated in the manual .	1
	An organisational Structure?	C	Clearly stated in the SHEQ management system, evidence provided.	1
	Roles and Responsibilities?	C	Clearly stated in the SHEQ management system evidence provided.	1
	Procedures and methods?	C	Clearly stated in the manual and SHEQ management system.	1
	Training?	C	Clearly stated in the SHEQ management system, evidence provided.	1
	Performance Monitoring?	C	Progress monitoring is clearly stated in the manual.	1
	Reporting and Response Mechanisms?	C	Only response mechanisms are stated in the manual.	1
	Emergency Preparedness Plans?	C	Clearly stated in the SHEQ management system, evidence provided.	1
	Management Review Procedures?	C	Clearly stated in the SHEQ management system, evidence provided.	1
	Auditing of the Tailings?	C	Knight Piesold was appointed to manage and audit Ash dams. Reports observed	1
1.8	The licensee shall manage and operate the facility in accordance with the plans and specifications	C	Ash dam operating instructions manual available	1
1.10	The licensee shall ensure the implementation of controls as to ensure that deposition of residue is done in such manner as to ensure that the shape of surface is managed in order to prevent the concentration of stormwater on the facility which might lead to excessive erosion and overtopping of containment structures.	C	Ash dam operating instructions manual available and stormwater management in place	1

1.	Storage of Water Containing Waste			
2.1	Volume authorised to be disposed			
	Desilting Reservoir 1 and 2 = 4 891 000	C	As per the design capacity of the dam	1
	Return Water Dams = 7 426 800	C	As per the design capacity of the dam.	1
	Ash Dam A & B = 207 377	C	As per the design capacity of the dam.	1
2.2	No industrial wastewater or water containing waste shall be disposed of or stored onto any land, into any pond, dam or any other structure whatsoever, except for the disposal as authorised in the conditions specified in this licence.	NC	Some parameters exceeded the authorised in the conditions specified in this licence.	0
2.3	The quantities and composition of the industrial wastewater and other waste authorised to be disposed in terms of this license may not be changed without prior authorisation from the Regional Head	N/A	Noting	-
2.4	Runoff emanating from both the Power Stations, wash bays, Ash Dams and water originating from washing the floors shall be considered as dirty water and shall not be discharged into the surrounding streams, Edenvale Spruit or the Modderfontein Spruit	C	The dirty water is channelled into the return water dam	1
2.5	Does the facility conduct water quality monitoring of the water containing waste disposed of into the return water dams?	C	Water quality monitoring is conducted and report monitoring available as proof	1
	Does the quality of the water consistently comply with the conditions set out in Table 2 of the license?	NC	Some parameters exceed the limits sets in table 2 of the licence	0
2.6	General			
2.6.2	The process dam system must be operated under the appropriate supervision and maintained in such a manner as to ensure that			
(a)	Does the facility ensure that the wave action created by wind does not erode the inner sides of the pond walls	C	No erosion on pond walls.	1
(b)	Does the facility maintain a 0.8M freeboard for the mine residue facility return water dam above the expected maximum water level based on the average monthly rainfall figure for the catchment area concerned, plus the maximum precipitation to be expected over a period of 24 hours with a frequency of once in every 50 years less the gross mean evaporation for the area.	N/A	Noting	-

2.6.3	Has the facility provided contour walls or furrows around the process dam system to prevent stormwater ingress or erosion of the evaporation pond walls and any wastewater system entering river or stream?	C	Furrows are implemented.	1
3.	Waste Water to be discharged			
	Does the Licensee discharge effluent of a maximum quantity of 2 599 380m ³ per annum through a secondary channel via a concrete channel to the Modderfontein spruit?	C	The effluent does not exceed the maximum quantity per annum as per salt balance report.	1
3.2	No industrial wastewater or water containing waste shall be discharged to the Modderfontein Spruit, except for the discharged as authorised in the conditions specified in the licence.	NC	Some parameters exceed the limits sets in table 2 of the licence	0
4.	Reporting			
4.1	Does the licensee update the water balance annually and calculate the load of waste emanating from the activities?	C	Dihlashana was appointed to report for the year 2023/2024. Report was provided as evidence.	1
	Has the licensee determined the contribution of their activities to the mass balance of the water resource and furthermore co-operated with other users in the catchment to determine the mass balance of the water resource reserve compliance point?	C	Mass balance of water resource for activities in the station was determined and reflected in the water balance report	1
4.2	The licence shall submit the results of analysis for the monitoring requirements to the regional head in an annual basis under reference number 16/2/7/A210/B1	C	Proof of submission was observed at the time of the audit dated 13/11/2024	1
5.	Stormwater Management			
5.1	Does the licensee have a stormwater management plan in place?	C	Stormwater Management Plan in place and was provided as proof at the time of the audit.	1
5.2	Stormwater leaving the Licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid,	NC	Some parameters exceeded the authorised in the	0

	liquid, vapour or gas or a combination thereof which is produced, stored, dumped or spilled on the premises		conditions specified in this licence.	
5.9	Is the polluted stormwater captured pumped back to the process water treatment plant for reuse and recycling?	C	Stormwater collected on site is channelled to the return dam, from there is pumped back to the operational area-the plant.	1
6.	Plant Areas and Conveyances			
6.1	Does the facility conduct a proper maintenance and effective measures to prevent spills from the conveyances?	PC	At the time of the audit, there was no evidence that the Conveyors were designed in a way such to have prevent spills; however none of the conveyors crosses the stream or goes connects to a different facility. All conveyors are within the boundary of Kelvin Power facility.	0.5
6.2	Are all reagent storage tanks and reaction units supplied with a bunded area built to the capacity of the facility and provided sumps and pumps to return the spilled material back to the system?	C	Spillages will be contained in a bunded walls, especially as observed at the tank farm provided with sump and pump.	1
	Is the above system maintained in state of good repair and standby pumps provided?	C	Calibration certificates are valid until Jun 2025	1
6.3	Are any hazardous substances handled according to the relevant legislation relating to transport, storage, and use of the substance?	C	The MSDS are available and there is a chemical storage store. Transportation of substances is through third party and certificates were provided as evidence	1
7.	Access Control			
7.1	Are strict access procedures followed in order to gain access to the property?	C	It was observed during the audit that access to the facility is controlled. Site inspections within the plant are done using the company	1

			vehicles driven by the Kelvin Power staff. Notices to various activities restricting access were observed.	
7.2	Is access to the waste disposal facility limited to authorised employees of the licensee and their contractors only?	C	Notices restricting unauthorised access were visible at the time of the audit	1
7.3	Are there notices prohibiting unauthorised persons from entering the controlled access areas as well as internationally acceptable signs indicating the risks involved in case of an unauthorised entry displayed along the boundary fence?	C	Notices restricting unauthorised access were visible at the time of the audit	1
8.	Contingencies			
8.1	Are accurate and up-to-date records kept of all system malfunctions resulting in non-compliance with the requirement of this license and records available for inspection?	C	An app called Android Smart Operator is used keep records and available for inspection.	1
	Does the malfunction records include the following 1. Operating hours 2. Mechanical failures (including design, installation or maintenance?) 3. Environmental factors (e.g floods)? 4. Loss of supply services (e.g power failure)? 5. Other causes?	C	An app called Android Smart Operator is used keep records and available for inspection.	1
8.2	The Licensee must within 24 hours, notify the Regional Head of the occurrence or potential occurrence of any incident which has the potential to cause, or has caused waste pollution, pollution of the environment, health risks or which is a contravention of the licence conditions	N/A	Noting	
8.3	Action plans related to incident should be submitted to the Regional Head within 14 days or shorter period of time as specified by the Regional Head	N/A	Noting	
9.	Auditing			
9.1	Does the Licensee conduct an annual internal audit on compliance with the conditions of this licence.	C	Previous internal audit was conducted on October 2024	1
	Is the audit report submitted to the Regional Head within one month of finalisation of the report?	NC	No evidence of submission was provided	0
	Is this report made available to external auditors when the need arise?	C	Audit report available upon request	1

9.2	Does the Licensee conduct an annual external audit on compliance with the conditions of this licence.	C	Previous external audit report was compiled by UFFE on December 2023	1
	Is the audit report submitted to the Regional Head within one month of finalisation of the report?	NC	No evidence of submission was provided.	0
10.	Integrated Water and Waste Management			
10.1	Does the licensee have an up-to-date Integrated Water and Waste Management Plan (IWWMP) in place?	C	Divhani environmental and engineering solutions Pty Ltd was appointed to update the IWWMP for the year 2023 and KPS is in the process of updating for the year 2024.	1
	Does the licensee have an up-to-date Rehabilitation Strategy and Implementation Programme (RISP) in place?	C	Divhani environmental and engineering solutions Pty Ltd was appointed to update the RISP for the year 2023 and KPS is in the process of updating for the year 2024	1
10.2	Are the IWWMP and the RISP updated annually?	C	IWWMP and RISP are updated annually by the chosen service provider	1
10.4	Has the licensee compiled a water balance explaining the management of the water in site?	C	Dihlashana was appointed to compile the report for the year 2023/2024. Report was provided as evidence.	1
	Does the water balance include: 1. Meteorological data (average and extreme rainfall events)? 2. Various water and effluent streams e.g General Service Water System, Ash Water System, Return Water System and General Effluent? 3. Raw water coming into the plant	C	The information is in the report compiled by Dihlashana.	1

	4. Distribution of raw water to the various industrial processes and to the third parties e.g Golf Course, Astrobrick 5. Distribution of waste water or effluent (e.g ash dam return water dam, general effluent) 6. Recycling and reuse of the effluent and waste water e.g service water for hydrants, dust control 7. Effluent discharge to the Modderfontein Spruit			
10.4.8	Does the licensee undertake groundwater impact study in order to determine the impact of its past and current activities on the receiving groundwater?	C	Aquatico is appointed Service Provider to conduct groundwater monitoring; quarterly groundwater monitoring reports were provided as evidence.	1
	Does the groundwater report include any plume modelling around potential pollution sources and what is leaving the licensee site?	C	The information is in the groundwater report compiled by aquatico.	1
	Does the study include mitigation measures to prevent further continuation of pollution into the water resources?	C	A report compiled by Arcus Gibb reflect the information dated March 2004	1
10.5	Has the licensee determined whether there is a link between the groundwater and the Edenvale Spruit and/or the Modderfontein Spruit?	C	SRK Consulting compiled a report which includes this information dated March 2016. Groundwater monitoring points were increased from 13 to 19 points.	1
10.6	Has the licensee implemented the pollution control measures at the coal stockpiles stores, the clinger hopper at station A and the area beneath the bag filter at station B to prevent and mitigate the impact on the receiving surface and groundwater quality?	C	SRK Consulting compiled a report reflect this information dated March 2016.	1
10.7	Has the facility made financial provision for all investigations, construction, operation and maintenance for a water treatment plant?	C	A financial provision have been made and evidence was provided.	1
10.8	A waste minimisation and management programme shall be submitted within six months of the issuance of this license to the regional head.	C	A waste classification and assessment report by Golder Associates dated March 2018 was provided.	1

10.10	Monitoring, Reporting and Auditing			
11.1	Surface water monitoring			
11.1.1	Does the licensee conduct surface water resource monitoring on point identified in Table 3 of the license?	C	Clean Stream (Pty) Ltd was appointed to conduct and compile the report as per condition 11.1.1 of the license.	1
11.1.2	Has the facility determined information relating to the following for all the points in Table 3: 1. The description of the points in terms of locality 2. GPS coordinated of each point 3. Map indicating these points in relation with all the infrastructure	C	Clean Stream (Pty) Ltd was appointed to conduct and compile the report as per condition 11.1.1 of the license.	1
10.1.3	Record date, time and monitoring point in respect to each sample taken	C	The information is reflected in the groundwater monitoring report by Aquatico	1
10.1.4	Monitoring points should not be changed without prior notification to and written approval by the Regional Head	N/A	Noting	-
11.2	Biomonitoring			
11.2.1	Does the licensee conduct biomonitoring annually during summer and winter season to reflect the status of the river upstream and downstream of the industrial activities?	C	Clean Stream Pty Ltd was appointed for the service.	1
	Is biomonitoring conducted by an approved Aquatic Scientist?	C	SAAS 5 Registered practitioners	1
11.2.2	Are toxicity testing performed on the effluent leaving the site at the desilting dams, the secondary channel and effluent entering the Edenvale Spruit on a quarterly basis in order to determine the risk to the receiving environment	C	Toxicity tests are performed and the report by Clean Stream Pty Ltd reflect the monitoring programme.	1
	Is the data gathered in the investigation reported annually during July each year to the Regional Chief Director?	C	Proof of submission to the regional head observed dated 13/11/2024	1
	Are there any toxicity level exceedances?			
	If yes, are there/or has there been any investigations to determine the cause of toxicity?	C	Investigations are conducted. The report by BioTox Lab dated May 2024 is available	1

11.2.3	Are toxicity test conducted quarterly on the wastewater stream from the Ash Dam and Return Water Dam when returned back to the Power Station for the use as process water?	C	Toxity tests are conducted by clean stream Pty Ltd.	1
11.2.4	Does the licensee participate in any initiative such as Direct Estimation of Ecological Effect Potential (DEEEP) to determine the toxicity of complex tailings waste discharged?	C	The report by Biotox Lab for May 2024 includes four sample sites tested for three taxonomic groups	1
	Are both acute and chronic toxicity addressed and at least three taxonomic groups presented when toxicity test performed?	C	Addressed in the BioTox Lab report	1
11.2.5	Has the licensee determined the accumulative impact due to both past and previous activities on the Edenvale Spruit and the Modderfontein Spruit?	C	Groundwater reports incorporate historical site data	1
11.2.6	Are the analysis carried out in accordance with the methods prescribed by SABS?	C	The laboratory is accredited	1
11.2.7	Analysis methos should not be changed without prior notification and approval	N/A	Noting	-
11.3	Water Resource Protection			
11.3.1	Does the impact of the activities of the industry on the Edenvale Spruit and the Moderfontein Spruit comply with the water quality provided in table 5?	PC	Some of the parameters/variables do not comply.	0.5
11.4	Groundwater Monitoring			
11.4.1	Does the Groundwater monitoring programme include water level monitoring, rainfall records, ash deposition data and hydrochemistry?	C	Provided in the groundwater report by Aquatico.	1
11.4.2	Are the monitoring boreholes clearly marked and numbered and equipped with lockable caps?	C	Monitoring boreholes are clearly marked	1
11.4.3	The department reserves the right to sample monitoring boreholes at any time to analyse these samples, or to have samples taken and analysed	N/A	Noting	-
11.4.4	Has the licensee maintained the groundwater quality monitoring network to the satisfaction of the Regional Head, so that unobstructed sampling, as required in terms of this License can be undertaken?	C	Groundwater monitoring Reports are available and were provided as evidence at the time of the audit.	1
11.4.5	Does the licensee monitor groundwater quality at the boreholes set out in table 4 of the license?	C	Reports are available and were provided as evidence.	1
11.4.6	Is groundwater monitoring conducted according to the monitoring frequency as defined in Table 4?	C	Reports are available and were provided as evidence at the time of the audit.	1

11.4.7	Is the groundwater monitoring report compiled and submitted to the Department within one month of its finalisation?	PC	Groundwater monitoring reports are available and no evidence that they were submitted to the department.	0.5
11.6	Emergency Monitoring			
11.6.1.1	Has there been any overflow of any pollution containment dam			
	If yes, has the licensee instituted any emergency monitoring?	C	Emergency monitoring plan in place and evidence was provided.	1
11.6.1.2	Was water sample of the effluent being spilled collected every 30 min until the water stopped overflowing?	C	No incident report/register was provided at the time of the audit however procedure stated in the emergency monitoring.	1
11.6.1.2	Was the water sample taken at the point it overflows and at the point upstream and downstream in the Edenvale Spruit and the Modderfontein Spruit being impacted until the effluent has stopped overflowing?	C	No incident report/register was provided at the time of the audit however procedure stated in the emergency monitoring.	1
11.6.1.3	Are surface water and effluent samples analysed for variables provided in condition 11.6.1.3 of the license?	C	Analyses of samples for variables as per condition 11.6.1.3	1
11.6.2	All incidents should be investigated and mitigation measures be put in place	N/A	Noting	-
11.6.3	A detailed report should be submitted to the Regional Head explaining the situation to prevent recurrence	N/A	Noting	-
11.8	Reporting			
11.8.1	Has the licensee compiled and annual report and submitted during the month of July highlighting compliance with the condition of the license?	C	Annual reports observed at the time of the audit	1
11.8.3	Does the report referred to above summarise, analyse and formulate all monitoring data to highlight trends (line graphs), compliance with set conditions and standards as well as potential risks and impacts?	C	Annual reports reflect the information as per the condition	1
11.8.4	All reports shall be submitted with a compete electronic copy attached on compact disk or such as determined by the regional Head	N/A	Noting	-

9. Discussion

A total of 97 conditions from the 2024 audit were reviewed for compliance with the IWUL and 87 conditions were found to be fully compliant with the IWUL, 3 partially compliant, 7 non-compliant and 19 could not be assessed for compliance.:

Two (2) key non-compliance findings were found on the 2024 audit and recorded as follows:

- Some parameters exceed the quantities specified in table 2 of the WUL.
- No proof that internal and external audit reports were submitted to the regional head

The outcome of the audit is summarized below according to the total scores in the results tables

Compliance status	2024 Audit outcome
Fully Compliant	87
Partial Compliance	3
Non-Compliance	7
Un-accessible conditions	19
Total	97

calculated as follows:

Compliance percentage = (Total Compliant/Total auditable conditions) * 100

$$= 88.5 / 97) * 100$$

$$= 91,2\%$$

Where; **Total compliant** = Full Compliant 2024 + Partial Compliant 2024

$$\text{Total compliant} = 87 + 1.5$$

$$= 88.5$$

Total Auditable = Number of fully compliant + Number of Non-compliant+ Number of partial compliant

$$= 87 + 7 + 3$$

$$= 97$$

It should be noted that the un-accessible conditions are excluded because they cannot be allocated to compliance, partial compliance or non-compliance. The compliance percentage for the 2024 audit is therefore **91.2%**

10. Conclusion and Recommendations

The audit was conducted to assess compliance with conditions set in the Integrated Water Use License (IWUL) for Kelvin Power Station. The audit included site inspection at Water Use activities areas followed by review and evaluation of documents and data as required by IWUL. The results obtained as well as site inspection outcomes indicated a fair level of compliance to the IWUL condition.

It is therefore recommended that the kelvin Power retain the proof of submission of internal and external audit reports to the Regional Head and further implement the recommendation as per the annual water quality report 2023/2024 report by Kelvin Power Station

11. References

1. Water Use License
2. Stormwater plans.
3. Emergency response plan.
4. Emergency plan and evacuation
5. IWWMP and RSIP
6. Catchment information
7. Waste permits
8. Calibration certificates
9. Discharge water limits
10. Emergency monitoring procedure
11. Kelvin Reticulation diagram
12. Groundwater monitoring reports.
13. Water balance report
14. Bio-Monitoring Report
15. Ash dam instructions manual

Annexure 1: Site Photos



Site Photo 1: showing the secondary channel.



Site photo 2: Showing ash dam A.



Site photo 3: Showing de-silting dam



Site Photo 4: Showing the return dam



Photo site 5: Showing downstream point to Modderfontein Spruit river.



Site photo 6: Showing a borehole.



Site Photo 7: Metering Devices across the facility.

