Eskom
Rotek Industries

Memo

Name: Thabo Tsimane

Title : Oil Depot Manager

To: _____

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Copy to: _____

Date: 27/10/2025

**Subject: Various audits and sampling at ERI for a period of 5 years**

## 1 INTRODUCTION

The Transformer Oil Cleaning Plant at the Transformer Oil Depot was destroyed in a fire in 2005. Rotek Industries applied for authorisation for the reconstruction and upgrade of the Plant in 2006. Environmental Authorisation (Reference No.: GAU 002/06-07/0094) was granted by the Gauteng Department of Agriculture, Conservation and Environment ("GDARD") on 11 April 2007 for the proposed reconstruction and upgrade of the plant for storage and handling of transformer oil. The Environmental Management Plan ("EMP") for the Transformer Oil Depot titled: "Environmental Management Plan for the Transformer Oil Cleaning Plant Rotek Engineering, Rosherville", dated November 2006 and compiled by SRK Consulting Engineers and Scientists, was approved by GDARD as part of the environmental authorisation application.

Construction activities commenced in September 2017. Currently, plants A, B, and C are temporarily used for activities related to oil purification and oil regeneration. A Drizit oil and water separator was installed to ensure that contaminated water is treated before it is discharged into the municipal sewer system.
Included in this proposal is an outline of our understanding of the project requirements, proposed scope of work and project schedule. We would be pleased to discuss any aspect of the proposal should refinement of the scope of work be required.

Eskom Rotek Industries (ERI) operates within the framework of the National Water Act 36 of 1998 and undertakes a number of activities in Rosherville precinct which may have an impact on surface water and groundwater. The organization conducts surface and groundwater monitoring to manage the risk of polluting water resources. Effective surface and groundwater monitoring is in line with the Eskom Groundwater Governance Guidelines as well as requirement of the National Water (Act 36, (1998).

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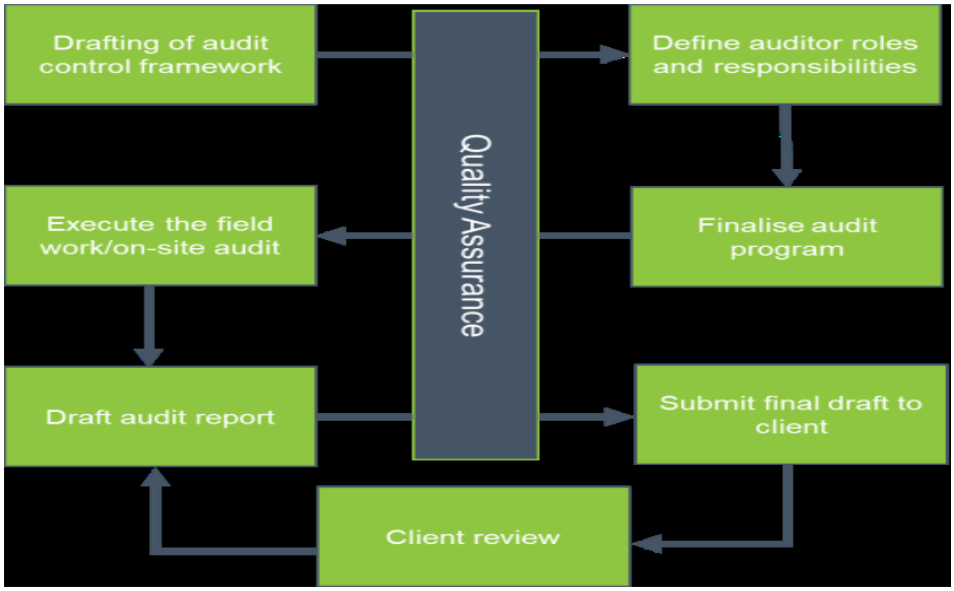
Eskom Rotek Industries to conduct passive badge monitoring of four Volatile Organic Compounds (VOCs) – Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) at their transformer oil depot in Rocherville, Gauteng. Monitoring at four sampling sites along the fenceline was conducted to determine the ambient concentration of these pollutants at the fuel depot, and to comply with the conditions of the depot's Atmospheric Emission License (AEL; AQ/REGF/AEL0010/1).

2. Audit process

The following diagram provides an overview of how audit will commence to execute the project:




## 3. SCOPE OF WORKS

### 3.1 Monitoring of the total volatile organic compounds (VoC's)

a) Conduct VoC's monitoring on each tank in both north and south tank farms (28 tanks in total).

B) Four passive badge sampling to be conducted within the Eskom Rotek Industries premises to detect ambient concentrations of VOCs. This must be done as per annual National Standard of 5 µg/m3 for Benzene (National Ambient Air Quality Standards, Government Gazette number 32816 (24 December 2009).

c) The VoC's compounds to analyses results to include the Aliphatic hydrocarbon gases C1-C4, Pentane n-Hexane, Benzene, n-Heptane Toulene, Ethyle benzene, Zylene and White spirit.

d) Biannually test of the VoC's on all the vents and pumps.

Image showing a Radiello Passive Sampler.

**Compilation of report**

e) Once the above-mentioned results are received from the laboratory, the service provider must compile a report and submit to ERI.

## 3.2 **Ground and stormwater monitoring.**

a) Ground water monitoring

The Scope of Work includes the outsourcing of the SANS accredited laboratory to analyse both ground and stormwater results. Ground water sampling to be conducted during July and December annually . Stormwater sampling to be conducted during December only annually. The results for both ground and storm water are to be submitted to Eskom Rotek Industries (ERI) an excel spread sheet and word document. The appointed service provider will collect the water samples from the sampling points at ERI, Rosherville and deliver them to the laboratory. Once the results are available from the laboratory, a separate report for ground and storm water must be compiled. Ground water samples must be collected in 13 monitoring points in July and December annually . Stormwater is to be collected at 5 monitoring points in December annually. The following parameters are to be sampled for the 13 groundwater monitoring wells.

**Groundwater Parameters**
Electrical Conductivity mS/m
Total dissolved solids mg/l
pH.
Nitrate (as N) mg/l
Sulphate as SO4 mg/l
Fluoride as F (mg/l)
Ammonia as N (NH3) (mg/l)
Chloride as Cl mg/l
Sodium as Na (mg/l)

Zinc as Zn (mg/l)
Arsenic as As NO (mg/l)
Total Chromium as Cr (mg/l)
Copper as Cu (mg/l)
Total Iron as Fe (mg/l)
Aluminium as Al (mg/l)
Total Manganese as Mn (mg/l)
Aluminium as Al (mg/l)

**Total Petroleum Hydrocarbons (TPH)**
C10-C12
C12-C16
C16-C21
C21-C30
C30-C35
C35-C40

### b) Stormwater water monitoring

Stormwater sampling is to be conducted at **5** Monitoring Points. The following are the parameters to be sampled for stormwater.

**Stormwater Parameters**
Chlorides as CI: 1 000 (mg/l)
Anionic surface active agents : 250 (mg/l)
Sulphates as S04 : 250 (mg/l)
Iron as Fe : 200 (mg/l)
Manganese (as Mn) 50 (mg/l)
Nitrates as N : 50 (mg/l)
Chrome as Cr : 20 (mg/l)
Cobalt as Co : 20 (mg/l)
Copper as Cu : 20 (mg/l)
Titanium as Ti: 20 (mg/l)
Cyanides as CN : (20 mg/l)
Zinc as Zn : 20 (mg/l)
Lead as Pb : 10 (mg/l)
Phenols as phenol : 10 (mg/l)
Nickel as Ni : 10 (mg/l)
Sulphides as S : 10 (mg/l)
Boron as B: 5 (mg/l)
Fluoride as F 5 (mg/l)
Molybdenum as Mo : 5 (mg/l)
Arsenic as As : 2,5 (mg/l)
Cadmium as Cd : 2,5 (mg/l)
Selenium as Se : 2,5 (mg/l)
Mercury as Hg : 1,0 (mg/l)

Total Petroleum Hydrocarbons (TPH)

C10-C12
C12-C16
C16-C21
C21-C30
C30-C35
C35-C40
pH,
EC,
TDS

Compilation

Once the above-mentioned results are received from the laboratory, supplier compile a report and submit to ERI:


### 3.3 Records of Decisions (RoD)

The scope of work is to undertake an external environmental audit in accordance with Regulation 34 of the Environmental Impact Assessment ("EIA") Regulations (GN.R 982, dated December 2014 (as amended April 2017)), as published under the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA").

Confirmation of compliance with the conditions included in the below-mentioned EA and EMPR:

- *Environmental Authorisation for the Proposed Reconstruction and Upgrade of the Plant for the Storage and Handling of Transformer Oil, Rotek Engineering Plant, Rosherville, Johannesburg (Transformer Oil Cleaning Plant) (Reference No.: GAU 002/06-07/0094) and*
- *Environmental Impact and Management Plan document (report number 367453-02-2006), approved in 2007*.

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3. CONDITIONS

**3.1 Description and extent of the activity**

The proposed development entails the reconstruction and upgrade of the facility for the storage of transformer oil at Rotek Engineering Plant. The proposed oil plant will be redesigned and reconstructed as described in 1 above.

**3.2 Specific conditions**

a) This Record of Decision (RoD) is only applicable to the proposed oil plant reconstruction and upgrade at Rotek Engineering site in Rosherville, lower Germiston Road, Johannesburg;

b) This Department will hold Rotek Engineering (Pty) Ltd liable for any damages that may be caused to the environment as a result of any activity related to the proposed upgrade;

c) Commitments and recommendations specified in the checklist dated 30 March 2006 as well as in the Environmental Impact Report dated November 2006 will be treated as binding to Rotek Engineering and must be complied with in full;

d) The Environmental Management Plan must be made available to all contractors on site whose activities will have a direct and/or indirect impact on the environment;

e) If any soil, surface and ground water contamination are noted during the construction, operation and decommissioning phases of the oil facility, the contaminated material must be removed to a hazardous waste disposal facility. The site must then be rehabilitated to the satisfaction of this Department and the Department of Water Affairs and Forestry (DWAF). The opportunity for the onsite remediation, reuse and recycling of contaminated material must be investigated prior to disposal and the Department informed in this regard;

f) Waste must be managed in accordance with the waste hierarchy as described in the national waste management strategy of 1999;

g) Hazardous waste in the form of waste oil, oily waste, fluorescent tubes, etc must be separated from general waste and removed by a registered hazardous waste contractor for recycling and / or reuse and as the last resort for disposal to a registered hazardous waste landfill site. Records of safe disposal certificates for all hazardous wastes leaving the site must be kept on file;

h) The oil tank must be erected within bund walls, which will be able to accommodate up to 110% of the content of tanks;

i) An oil / water separator must be constructed down gradient of the site. The separator must be inspected daily and properly maintained;

j) Oil from the separator must be pumped out for recycling and / or disposal by a registered waste oil handling company;

k) Contaminated water from the plant must be passed through the separator before discharge into the municipal sewerage system in line with the municipal requirements for the disposal of such effluent. The opportunity for the onsite reuse and recycling of contaminated water must be investigated prior to disposal and the Department informed in this regard;

l) No contaminated water must be discharged into the storm water drains, nearby water streams; soils; ground water and to the wetlands. Rotek Engineering must develop a system to separate clean storm water from dirty storm water;

m) Rotek Engineering must within six months of the date of this letter implement a program to measure the quality of contaminated water discharged into the municipal sewerage system to ensure compliance with the municipal effluent quality standards and any other requirements as set in the Johannesburg Municipal Water By-laws.

n) Rotek Engineering must within six months of the date of this letter implement a program to monitor the quality of ground water to determine the presence of oil contamination. Ground water monitoring must be conducted biannually;

o) Daily stock reconciliation must be conducted and a record must be maintained;

p) The Emergency Response Plan must be implemented and adhered to at all times;

q) Rotek Engineering must install an improved fire protection system to rapidly identify and extinguish any transformer oil fire;

r) Rotek Engineering must comply with the requirements of all relevant environmental legislation with respect to noise, air emissions, effluent and solid waste disposal during the construction, operation and decommissioning phases of the oil plant;

s) The installation of the tanks including all secondary equipment such as piping and mitigation measures must be done by an experienced professional, in accordance with relevant SANS codes and;

t) Spill management kits must be made available at all areas with potential spillages and relevant personnel must be trained to use them accordingly. All areas in the plant must be kept clean at all times; and

u) An environmental control officer (ECO) must be appointed/ or designated to ensure that regular audits are performed before, during and after the completion of construction activities to ensure implementation of mitigation and management measures. Furthermore, an ECO must monitor the applicant's compliance with all conditions of this authorisation.

**3.3 Reporting Requirements**

a) An annual environmental performance audit must be conducted at the site by an independent consultant and the results must be submitted to this Department. The first audit must reach this Department within 12 (twelve) months of the date of this authorisation. The annual audit should include, but not be limited to the following:
   i. Presentation and analysis of records of biannual results of ground water monitoring;
   ii. Analysis of records of results of monthly volumes and quality of contaminated water discharged into the municipal sewerage system;
   iii. Analysis of records of monthly volumes of oil received and oil consumed; including a discussion on any discrepancies;
   iv. Discussion on the performance of the fire protection system, installed to rapidly identify and extinguish potential transformer oil fire;
   v. Discussion of any atmospheric emissions during the construction and operational phases of the plant and measures taken to mitigate the impacts;
   vi. Records of negative environmental occurrences during the construction and operational phases of the oil plant and measures taken to mitigate the impacts;
   vii. Discussion of the conformance of the operation to industry standards and SABS/ SANS codes;
   viii. Confirmation that the storm water handling system, the oil spillage management system, fire protection system and the oil transportation piping system has indeed been redesigned in accordance with the description in the Environmental Impact Report dated November 2006;
   ix. Discussion of the performance of the oil/water separator and maintenance thereof;
   x. Confirmation of compliance with the conditions of this authorisation;
   xi. Confirmation of compliance with the Environmental Management Plan;
   xii. Copies of safe disposal certificates for all hazardous solid waste, oily waste and waste oil removed from the site for recycling or disposal; and
   xiii. Results of the annual and any other pressure testing;

b) Any nonconforming incident/accident related to this activity must be reported to the Department within 24 hours thereof. The report must also indicate the cause of the incident/accident and steps taken to mitigate the negative impacts;

c) The applicant must notify the Department within 24 (twenty-four) hours if any condition of this authorisation cannot, or is not, adhered to. The notification must be supplemented with reasons for non-compliance; and

d) Any deviations from the RoD conditions, the Environmental Management Plan and recommendations in the Environmental Impact Report dated November 2006 must be done with the permission from this Department.

**3.4 General conditions**

a) Any changes to, or deviations from, the project description set out in this letter must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to

grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations;

b) This Department may review the conditions contained in this letter from time to time and may, by notice in writing to the applicant, amend, add or remove a condition;

c) The applicant must notify the Department, in writing, at least 10 (ten) days prior to the change of ownership, project developer or the alienation of any similar rights for the activity described in this letter. The applicant must furnish a copy of this document to the new owner, developer or person to whom the rights accrue and inform the new owner, developer or person to whom the rights accrue that the conditions contained herein are binding on them;

d) Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/ or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant;

e) Authorisation for the activity is granted in terms of the Environment Conservation Act, 1989 (Act 73 of 1989) only and does not exempt the holder from compliance with other relevant legislation;

f) The applicant shall be responsible for ensuring compliance with the conditions contained in this letter by any person acting on his behalf, including but not limited to, an agent, servant, or employee or any person rendering a service to the applicant in respect the activity, including but not limited to, contractors and consultants;

g) Departmental officials shall be given access to the property referred to in 1 above for the purpose of assessing and/or monitoring compliance with the conditions contained in this document at all reasonable times; and

h) The applicant must notify the Department within 24 (twenty four) hours if any condition of this exemption cannot or is not adhered to. The notification must be supplemented with reasons for non-compliance.

**3.5 Duration of authorisation**

If the activity authorised by this letter does not commence within two (2) years from the date of signature of this letter, the authorisation will lapse and the applicant will need to reapply for exemption or authorisation in terms of the NEMA Environmental Impact Assessment regulations, 2006.

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Compilation

Once the above-mentioned scope of work is completed the supplier to compile an audit report and submit to ERI:

### 3.4 Stormwater Quality assessment

The scope of the work entailed the following:

a) Conduct stormwater sampling at the four (4) selected sites;
b) Send the samples to a South African National Accreditation Systems (SANAS) – accredited laboratory for analysis on parameters as per the requirements from City of Johannesburg Water Services By-Laws (CoJ, 2013), South African National Standards (SANS-241:2015) or other stormwater best practices.
c) Compare the results with the City of Johannesburg Water Services By-laws maximum limits for sewage, industrial effluent or other liquid discharged to the sewer; and
d) Provide recommendations based on the water quality results.

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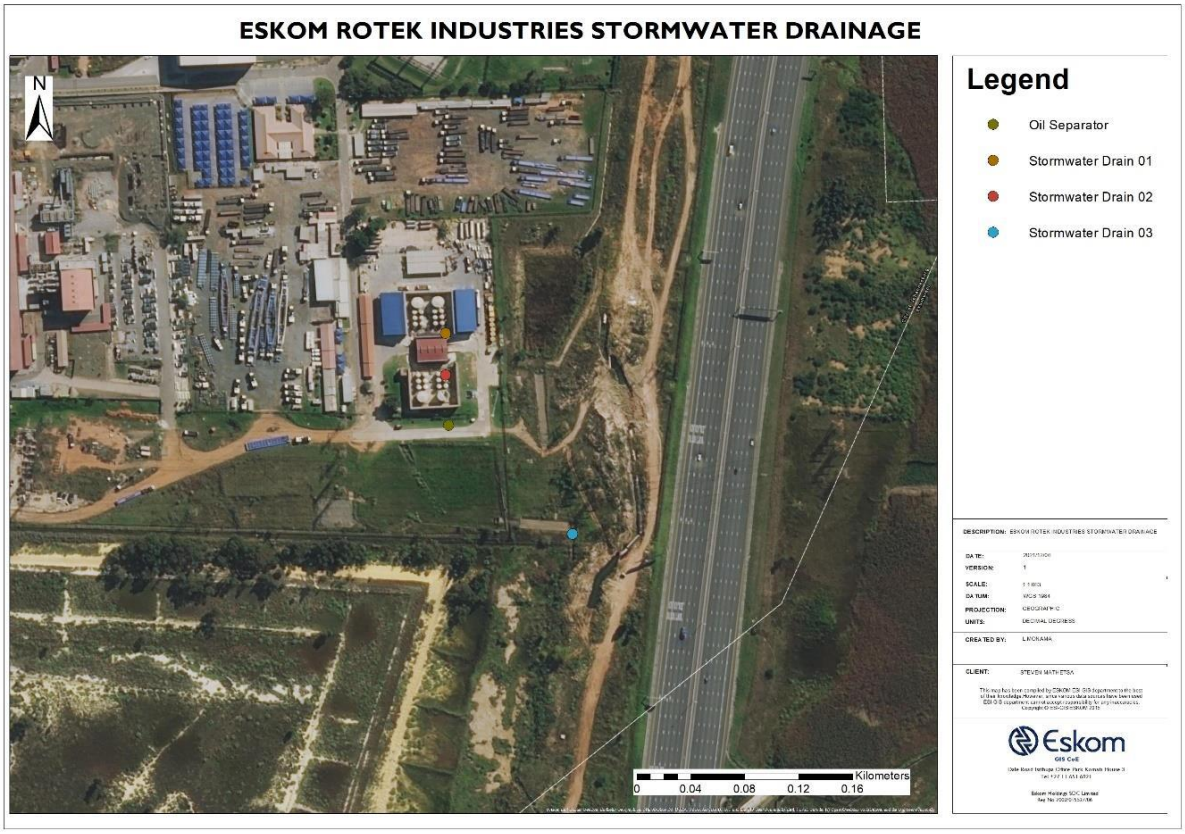


## Test to be conducted

a)

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|---|
| Chloride (Cl) |
| Sulphate ($SO_4$) |
| Ammonium ($NH_4$) as N |
| Nitrate ($NO_3$) as N,Total oxidised nitrogen as N |
| Fluoride (F) |
| Sulphide |
| Electrical conductivity (EC) @ 25°C,pH @ 25°C |
| Free and Saline Ammonia as N |
| Cadmium (Cd),Cobalt (Co),Chromium (Cr) ,Copper (Cu),Iron (Fe),Manganese (Mn),Nickel (Ni),Lead (Pb),Zinc (Zn) |
| Boron (B),Molybdenum (Mo) |
| Arsenic (As),Selenium (Se) |
| Phenol |
| Oil and Grease - Petroleum ether |

B ) C16 - C22,TPH C10 - C40, C10 - C16,C22 - C30,C30 - C40

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Compilation

Once the above-mentioned scope of work is completed the supplier to compile a report and submit to ERI:

Entry requirements

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| Sample to be conducted at Eskom Rotek Industries, Lower Germiston Road, Rosherville. |
| All costs for transportation must be included in the quoted price for the material. |
| All vehicles must comply to the relevant Eskom Rotek Industries safety policies and procedures when entering the premises. |
| All vehicles entering and leaving the premises are subject to and must comply with a security search. |
| Materials must be protected against damage, moisture and dirt |

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Compiled by:

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Thabo Tsimane
Oil Depot Manager
Transformer & Switchgear Services