GYRO GROUP

DIESEL TANK COMPLIANCE

GROUNDWATER MONITORING REPORT

Telkom The Core

December 2024

SEC REFERENCE NUMBER: E21102

PO Box 30134, Tokai, 7966
Telephone: 021 712 5060
Email: info@environmentalconsultants.co.za

Site contact name:	Francois Scholtz	**Contact Details:**	082 373 4349
Date of assessment:	26 November 2024	**Report compiled by:**	Sillito Environmental Consulting (Pty) Ltd

The Gyro Group requested Sillito Environmental Consulting (Pty) Ltd (SEC) to initially conduct Phase 1 assessments across a number of sites across South Africa. The aim of these assessments was to provide an indication of the environmental setting of the site, the location and accessibility of the Underground Storage Tanks (USTs) and the associated fuel delivery infrastructure and a preliminary indication of the potential risk associated with the historic fuel storage at the site. Upon completion of this work SEC was subsequently requested to complete Phase II Assessments at these sites. The aim of the Phase II assessments was to install and develop monitoring wells, as well as to identify any contamination in the drill chips and to sample the wells once they have stabilized.

The Phase II Assessments recommended that annual groundwater monitoring be undertaken at the sites. SEC was requested to undertake the groundwater monitoring as per these recommendations. The scope of work for the groundwater monitoring is defined as follows:

1. Obtaining the required approvals prior to proceeding with the fieldwork.
2. Identifying the monitoring wells, inspecting them, and assessing their condition.
3. Record field measurements for the groundwater in each well where groundwater was present.
4. Recover water samples from each well.
5. Reporting and recommendations based on the laboratory and fieldwork results.

This current report present the results of the annual ground water sampling carried out at this site.

1.Site details:

Site Name	Telkom Core		
Site Address	61 Oak Avenue, Highveld Centurion	**Telephone Number:**	082 373 4349
		Fax Number:	
GPS coordinates:	25°52'39.47"S	**Landowner:**	Telkom
	28°11'11.94"E	**Telephone Number:**	012 680 6139
Current supplier:	Bidvest	**Total throughput/month:**	Unknown
Reconciliation records kept (dip records):	The tank is electronically monitored onsite by Bidvest	**Previous Tank Repairs:**	According to the site contact (Francois Scholtz) no repairs were conducted on the UST
		Previous pipeline Repairs:	None
Description of current and historical use of property:	The site is a Telkom exchange and data centre.		
Description of land-use immediately adjacent to the UST/site	**North:**	The Core building, beyond which is an access road, beyond which is the Telkom Park site boundary, beyond which are commercial activities in the form of Office Parks	
	East:	The Core site boundary, beyond which is an access road, beyond which are Telkom Offices	

	South	The Core site boundary, beyond which is an access road, beyond which is Telkom, The Hub
	West:	The Core site boundary, beyond which is an access road, beyond which is a parking area, beyond which is the Telkom Park site boundary, beyond which is Oak Avenue beyond which are commercial activities in the form of Office Parks

2.Tankage:

Underground storage tanks (USTs)	**Tank number:**	**Capacity (litres)**	**Product:**	**Estimated age of tank:**	**Tank construction details:**	**Comments:**
	1	23 000	Diesel	Unknown	Steel	Operational and in use
	2	23 000	Diesel	Unknown	Steel	Operational and in use
Integrity testing:	**Type of testing:**	According to the previous site contact (Francois Scholtz), vacusonic and water ingress tests are conducted on a regular basis, however, the site contact could not provide the exact dates when the tests are conducted.				
	Date of last test:	Could not be confirmed				

Pumps (Y/N)	**Type**	**Submersible**	**N**	**Suction**	**Y**	**Leak Detectors**	**Y**

Site observations (surface staining, housekeeping etc.):	• The two USTs were remote filled, with the filler points located outside The Core premises. • The fillers points are housed in brick chambered manholes with no provisions for secondary containment. • The tank manholes were found to be sealed with no provisions for secondary containment. • No hydrocarbon staining was observed in the vicinity of the filler points and tank manholes. • No tank leak detection wells (TLDWs) were observed in the vicinity of the tanks.

3.Environmental Setting:

Hydrocensus and NGA search results:	• No registered groundwater users were identified within close proximity to the site.
Sensitive receptors (rivers, streams, wetlands, schools etc.)	• None

1. GEOHYDROLOGICAL SETTING

Based on the fieldwork assessment as well as reference to Google Earth the site has a slight slope to the north of <2°.

The 1: 250 000 scale geological map for the area (2528 Johannesburg) indicates that the site is underlain at depth by the Malmani Subgroup bedrock comprising dolomite, stromatolitic, interbedded chert, minor carbonaceous shale, limestone, and quartzite. During the drilling of the monitoring wells a summary of the soil profile encountered is presented in Section 4 below.

The 1:500 000 scale hydrogeological map series and the 1:3 000 000 scale Aquifer Classification Map of South Africa compiled by the Department of Water and Sanitation indicates that the site is underlain

predominantly carbonate rocks (dolomite). This results in the formation of a karst aquifer in this area with borehole yields typically ranging from > 5.0 l/s.

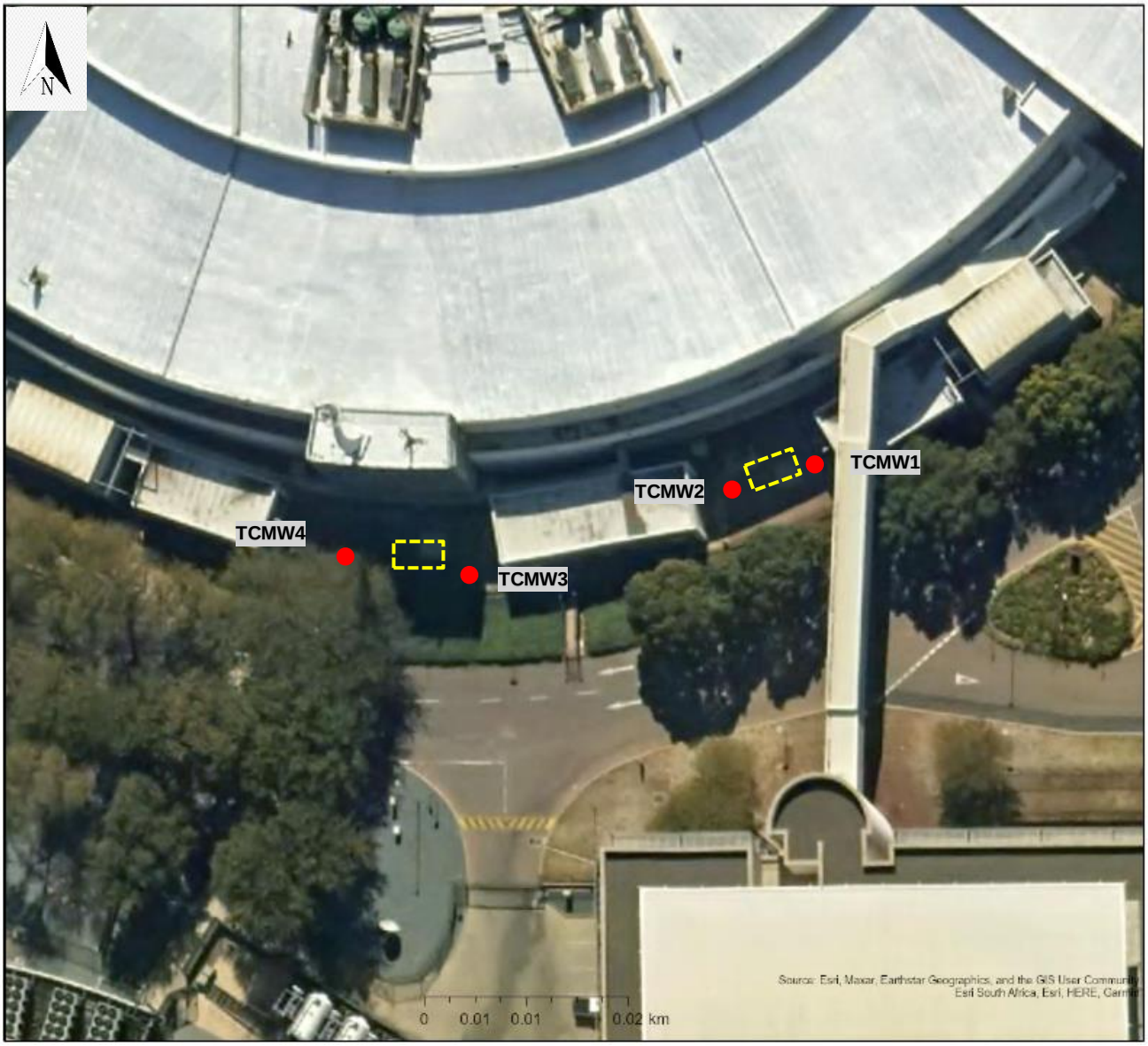
The aquifer is further classified as having a high vulnerability[1] and a high susceptibility[2] rating. Water quality is good with electrical conductivity values ranging between 0 and 70 mS/m.

The aquifer is further classified as having a most vulnerability[3] and a high susceptibility[4] rating. Water quality is moderate with electrical conductivity values ranging between 70 and 300 mS/m.

Please refer to **Figure 1** for the site location information and new monitoring well positions.

[1] Vulnerability**:** likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer
[2] Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.
[3] Vulnerability**:** likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer
[4] Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.

Figure 1: Site Locality Map & Monitoring Well Location



Title	Project Title	Project Number	Legend:		
Site Image	Telkom The Core	E21102		Tank Location	Monitoring Well

2. PROJECT METHODOLOGY

The assessment included the dipping and sampling of all located monitoring wells using a Solinst Interface Probe. The two monitoring wells that were installed in July 2023 were located, inspected, dipped, and sampled. The sampling procedure is outlined below:

1. The monitoring wells were dipped using a Solinst Interface meter to determine groundwater depth and the presence or absence of Free Phase Product in the form of diesel.

2. The wells were then low flow sampled using a peristaltic pump feeding to a flow cell which was monitored using a YSI probe to determine when the groundwater quality had stabilised. The latter was achieved from the electrical conductivity values had stabilised to within 10% of the previous reading.
3. The groundwater samples were also headspace screened using a calibrated and certified Photo Ionisation Detector (PID) at the time of sampling.
4. The samples were placed in a cool, dark container and sent via courier to a SANAS accredited laboratory for screening analysis accompanied by the appropriate Chain of Custody (COC) documentation.

3. FIELDWORK FINDINGS & SOURCE PATHWAY RECEPTOR CONSIDERATIONS

The monitoring well data has been included in **Table 2** and **3** below and includes the headspace volatile organic carbons (VOC) concentrations, static groundwater levels and water quality data from the current and previous assessment. Monitoring well TCMW4 was moist at the bottom, and therefore no groundwater sample or field parameters could be recovered.

Table 2: Monitoring Well Data

Well ID	Well Depth	08/07/2023		26/11/2024	
		SGL[1] (m bgl)	HC[2] (ppm)	SGL[1] (m bgl)	HC[2] (ppm)
TCMW1	15	10.49	0	10.27	0
TCMW2	15	10.54	0	8.94	0
TCMW3	15	9.84	0	9.28	0
TCMW4	13	12.14	0	10.52	-

1 Static groundwater level (meters below ground level)

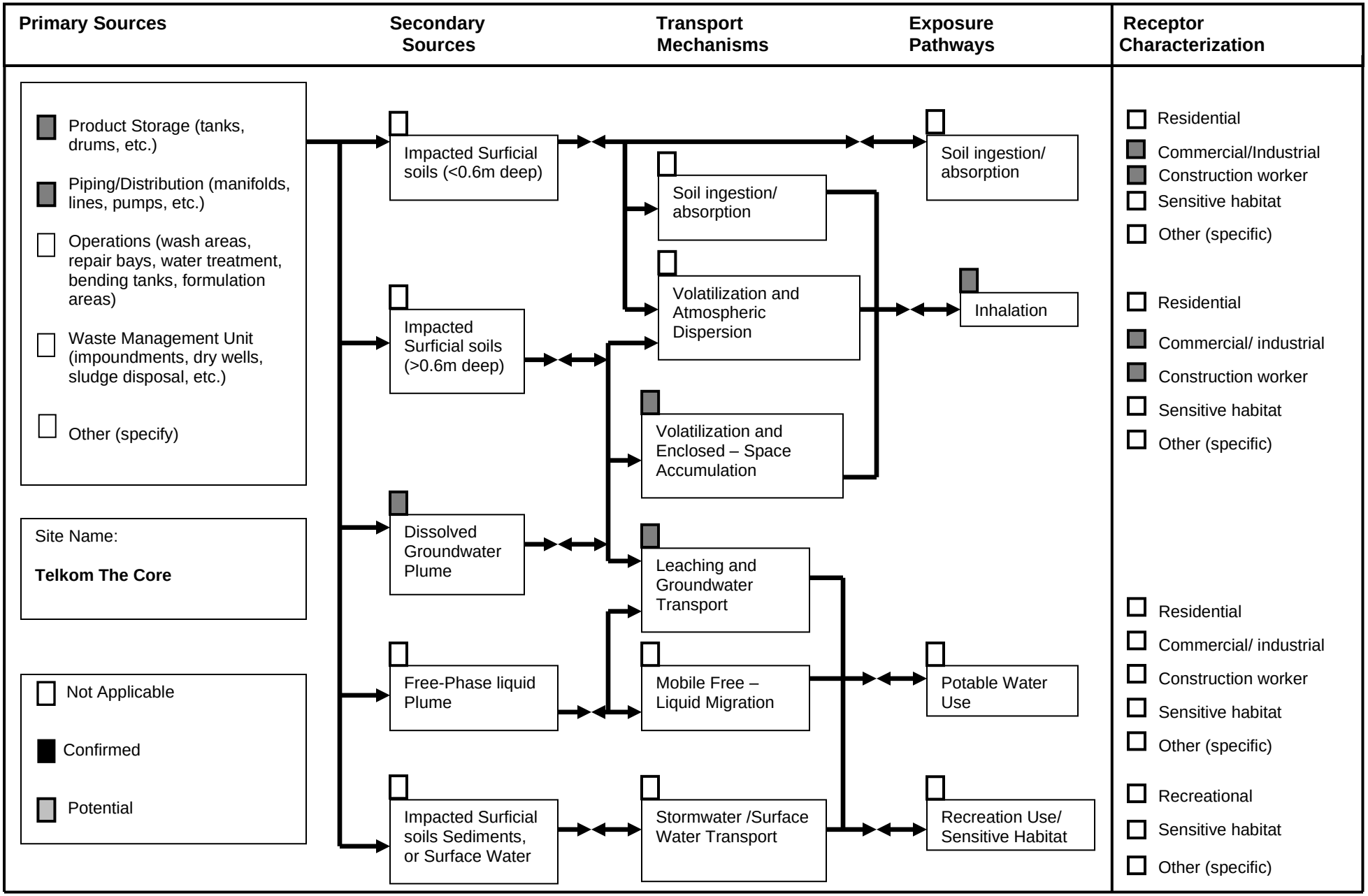
2 Head Space Concentration (parts per million)

Table 3: In-Situ Field Measurements

Sample Date		26/11/2024				SANS
Determinant	Units	TCMW1	TCMW2	TCMW3	TCMW4	Drinking water
Groundwater Depth	m bgl	10.27	8.94	9.28	10.52 Moist at bottom	NVD
Temperature	°C	20.8	22.0	21.8	-	NVD
pH	pH	6.88	7.17	6.97	-	≥ 5 – ≤9.7
Electrical Conductivity	mS/m	427	441	509	-	≤170
Dissolved Oxygen	%	9.4	32.1	26.3	-	NVD
ORP	mV	179	168	222	-	NVD
Total Dissolved Solids	Mg/l	278	287	331	-	≤1 200

In order to assess the potential risk at the site, a graphic has been presented in **Figure 2** below, which identifies the likely source, pathway, and receptor linkages (SPR) and the identified potentially complete SPR linkages. The potential receptors considered are the current users on site. The identified potential exposure pathways include the inhalation of hydrocarbon vapours from indoor and outdoor air from a groundwater source.

Figure 2: Source-Pathway-Receptor



4. SCREENING TOOLS CONSIDERED & LABORATORY RESULTS

The laboratory results for the groundwater analyses are summarised in **Table 4** below and include the previous set of results for comparison. The results have been assessed using RISC (Risk Integrated Software for Clean-ups) Version 5, Tier 1 screening levels. The source pathway receptor scenarios considered for this site, were for the inhalation of indoor and outdoor air from a groundwater source in a commercial land-use type environment.

Where any of the laboratory results exceeded the screening values considered these results have been highlighted in red. Values highlighted in plain red have exceeded the RISC Screening Levels for a Tier 1 assessment. Values faded out are below the detection level for the analysis whilst screening levels faded out have not been exceeded.

RISC 5 Tier 1 is a general, conservative risk-based assessment. These assessments use conservative human health risk-based screening values for soil and water which have been calculated using accepted US EPA algorithms, toxicological data and exposure and point of receptor assumptions based on empirically derived data.

The laboratory result transcripts can be found in **APPENDIX A** below.

Table 4: Groundwater Analytical Results (mg/l)

Sampling Date	08/07/2023				26/11/2024				RISC Tier 1	
Determinant	TCMW1 at 10.49 m bgl	TCMW2 at 10.54 m bgl	TCMW3 at 9.84 m bgl	TCMW4 at 12.14 m bgl	TCMW1 at 10.27 m bgl	TCMW2 at 8.94 m bgl	TCMW3 at 9.28 m bgl	TNMW4	Commercial Land-Use	
									Inhalation of Indoor Air[1]	Inhalation of Outdoor Air[1]
VOC-PID (ppm)	0	0	0	0	<1	<1	<1	Moist at bottom	NVD	NVD
GRO										
Methyl tert-Butyl Ether (MTBE)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	2 418.946	>Sol
Tert-amyl Methyl Ether (TAME)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NVD	NVD
Benzene	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.066	26.265
Toluene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	27.685	>Sol
Ethylbenzene	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	72.406	>Sol
m+p-Xylene o-Xylene	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	8.147	>Sol
Trimethylbenzene, 1,2,4-	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	NVD	NVD
Trimethylbenzene, 1,3,5-	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	NVD	NVD
Naphthalene	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	2.993	>Sol
TPH GRO C7 – C9	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NVD	NVD
DRO										
TPH DRO C10 – C14	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	NVD	NVD
TPH DRO C15 – C36	<0.412	<0.412	<0.412	<0.412	<0.412	<0.412	<0.412	<0.412	NVD	NVD

1 Groundwater [mg/l] – Commercial land use

5. FINDING & COMMENTS

1. The current average static groundwater level on site as of 26/11/2024 was 9.50 m bgl, which is 1.25 m shallower than the previous results in July 2023 and reflects seasonal fluctuations.
2. PID headspace screening values were all <1 ppm.
3. The laboratory results for the groundwater samples indicated none-detectable levels for all BTEXN compounds, including the additives MTBE and TAME.
4. In terms of the TPH banding analysis results, the C_7 – C_9 carbon group (GRO range), non-detectable levels were encountered in both groundwater samples analysed.
5. Non-detectable levels of the C_{10} – C_{14} and C_{15} – C_{36} carbon groups (DRO range) were encountered in both groundwater samples analysed.

6. In terms of assessing the risk associated with the groundwater, the risk scenarios considered for the site were for the inhalation of indoor and outdoor air from a groundwater source in a commercial land-use environment, which indicated the following:
   a. The Tier 1 screening levels for the risk scenarios considered for the site were not exceeded.
7. Based on the risk scenarios considered for the site, the fieldwork carried out and laboratory results received, there is a no potential risk currently defined to on-site receptors from a groundwater source.

6. RECOMMENDATIONS

Based on the work completed at the site and the current assessment finding, the following is recommended:

1. Annual sampling of the monitoring wells should be continued so that any potential subsurface impacts of the fuel storage facility can be determined, and action taken as required at that time.
2. Ideally sampling should be carried out much earlier in the year and typically during the wetter parts of the year in June to August to enable sampling and adequate water in the monitoring wells.

We trust that this summary report contains sufficient information. Should you have any further questions please contact the author.

Report compiled by:	Report reviewed by:
Adriaan Botha	Adrian Sillito
Pr. Sci. Nat Registration Number 123032	*Pr. Sci. Nat Registration Number 400046/93*

SILLITO ENVIRONMENTAL CONSULTING

APPENDIX A:
LABORATORY RESULTS

ENVIRONMENTAL POLLUTION LABORATORY

sanas Testing Laboratory T0419

TEST REPORT 55024A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

Client:	Sillito Environmental Consulting				
Address:	Suite 401,Tokai on Main, 2 Burchell Road Tokai, Cape Town 7945	**Attention:**	Adriaan Botha	**Project number:**	E21102
		Tel:	(021) 712-5060	**Project name:**	Telkom - Telkom Park Core
		Email:	adrian@environmentalconsultants.co.za; a.both		

Sample Information

Sample ID:	**TCMW1**	**Matrix:**	Water	**Date Received:**	2024/11/27
Dilutions:	BTEX/GRO = No Dilution, TPH = No Dilution	**Storage:**	Fridge at 0-6°C	**Date Analysed:**	2024/11/27
Container:	Glass			**Date Issued:**	2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	<60 µg/liter
TPH C15-C36	<412 µg/liter
TPH C10-C36 Total	<412 µg/liter

Disclaimers

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4) A = Concentration outside calibration range, O = Outsourced analysis, UTD = Unable to Determine.
5) Uncertainty of measurement for all methods included in the SANAS Schedule of Accreditation is available on request.

Jan-Daniël Vorster
Authorised Signatory

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ENVIRONMENTAL POLLUTION LABORATORY

sanas Testing Laboratory T0419

TEST REPORT 55024A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

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Address:	Suite 401,Tokai on Main, 2 Burchell Road Tokai, Cape Town 7945	**Attention:**	Adriaan Botha	**Project number:**	E21102
		Tel:	(021) 712-5060	**Project name:**	Telkom - Telkom Park Core
		Email:	adrian@environmentalconsultants.co.za; a.both		

Sample Information

Sample ID:	**TCMW2**	**Matrix:**	Water	**Date Received:**	2024/11/27
Dilutions:	BTEX/GRO = No Dilution, TPH = No Dilution	**Storage:**	Fridge at 0-6°C	**Date Analysed:**	2024/11/27
Container:	Glass			**Date Issued:**	2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
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o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
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ENVIRONMENTAL POLLUTION LABORATORY

TEST REPORT
55024A

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Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

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Tokai, Cape Town
7945

Attention: Adriaan Botha
Tel: (021) 712-5060
Email: adrian@environmentalconsultants.co.za; a.both

Project number: E21102
Project name: Telkom - Telkom Park Core

Sample Information

Sample ID: **TCMW3**
Dilutions: BTEX/GRO = No Dilution, TPH = No Dilution
Container: Glass

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2024/11/27
Date Analysed: 2024/11/27
Date Issued: 2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
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TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
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GYRO GROUP

DIESEL TANK COMPLIANCE

GROUNDWATER MONITORING REPORT

Telkom The Hub

December 2024

SEC REFERENCE NUMBER: E21102

PO Box 30134, Tokai, 7966
Telephone: 021 712 5060
Email: info@environmentalconsultants.co.za

Suite 105 Block B2 Tokai Village Centre
Vans Road, Tokai, 7945
Directors: Adrian Sillito (Managing) & Diane Sillito

Reg No: 201502800407

Site contact name:	Francois Scholtz	**Contact Details:**	082 373 4349
Date of assessment:	26 November 2024	**Report compiled by:**	Sillito Environmental Consulting (Pty) Ltd

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1.Site details:

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		Fax Number:	
GPS coordinates:	25°52'39.79"S	**Landowner:**	Telkom
	28°11'18.03"E	**Telephone Number:**	012 680 6139
Current supplier:	Bidvest	**Total throughput/month:**	Unknown
Reconciliation records kept (dip records):	The tank is electronically monitored onsite by Bidvest	**Previous Tank Repairs:**	According to the site contact (Francois Scholtz) no repairs were conducted on the UST
		Previous pipeline Repairs:	None
Description of current and historical use of property:	The site is a Telkom exchange and data centre.		
Description of land-use immediately adjacent to the UST/site	**North:**	Access road beyond which is undercover parking, beyond which are commercial activities in the form of Office Parks	
	East:	Access road beyond which is undercover parking, beyond which is the site boundary beyond which is the M36 Highway beyond which are Residential properties	

	South	Access road beyond which is undercover parking, beyond which is the site boundary beyond which is the M36 Highway beyond which are Residential properties
	West:	Access road beyond which is undercover parking, beyond which is the site boundary beyond which is the M36 Highway beyond which are Residential properties

2.Tankage:

	Tank number:	**Capacity (litres)**	**Product:**	**Estimated age of tank:**	**Tank construction details:**	**Comments:**
Underground storage tanks (USTs)	1	14 000	Diesel	Unknown	Steel	Operational and in use
	2	14 000	Diesel	Unknown	Steel	Operational and in use
	3	9 000	Diesel	Unknown	Steel	Operational and in use
	4	9 000	Diesel	Unknown	Steel	Operational and in use
	5	9 000	Diesel	Unknown	Steel	Operational and in use

Integrity testing:	**Type of testing:**	According to the previous site contact (Francois Scholtz), vacusonic and water ingress tests are conducted on a regular basis, however, the site contact could not provide the exact dates when the tests are conducted.						
	Date of last test:	Could not be confirmed						
Pumps (Y/N)	**Type**	**Submersible**	**N**	**Suction**	**Y**	**Leak Detectors**	**Y**	

Site observations (surface staining, housekeeping etc.):	• The five (5) USTs are remote filled and are located on one tank farm. • The remote fillers are housed in brick manholes with no proper containment manholes. • The tank access manholes were found to be sealed with no secondary containment. • No hydrocarbon staining was observed in the vicinity of the filler points and tank manholes. • No tank leak detection wells (TLDWs) were observed in the vicinity of the tank farm.

3.Environmental Setting:

Hydrocensus and NGA search results:	• No registered groundwater users were identified within close proximity to the site.
Sensitive receptors (rivers, streams, wetlands, schools etc.)	• None

1. GEOHYDROLOGICAL SETTING

Based on the fieldwork assessment as well as reference to Google Earth the site has a slight slope to the north of <2°.

The 1: 250 000 scale geological map for the area (2528 Johannesburg) indicates that the site is underlain at depth by the Malmani Subgroup bedrock comprising dolomite, stromatolitic, interbedded chert, minor carbonaceous shale, limestone, and quartzite. During the drilling of the monitoring wells a summary of the soil profile encountered is presented in Section 4 below.

The 1:500 000 scale hydrogeological map series and the 1:3 000 000 scale Aquifer Classification Map of South Africa compiled by the Department of Water and Sanitation indicates that the site is underlain predominantly carbonate rocks (dolomite). This results in the formation of a karst aquifer in this area with borehole yields typically ranging from > 5.0 l/s.

The aquifer is further classified as having a high vulnerability[1] and a high susceptibility[2] rating. Water quality is good with electrical conductivity values ranging between 0 and 70 mS/m.

The aquifer is further classified as having a most vulnerability[3] and a high susceptibility[4] rating. Water quality is moderate with electrical conductivity values ranging between 70 and 300 mS/m.

Please refer to **Figure 1** for the site location information and new monitoring well positions.

[1] Vulnerability**:** likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer
[2] Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.
[3] Vulnerability**:** likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer
[4] Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.

Figure 1: Site Locality Map & Monitoring Well Location

Title	Project Title	Project Number	Legend:		
Site Image	Telkom The Hub	E21102		Tank Farm Location	Monitoring Well

2. PROJECT METHODOLOGY

The assessment included the dipping and sampling of all located monitoring wells using a Solinst Interface Probe. The two monitoring wells that were installed in July 2022 were located, inspected, dipped, and sampled. The sampling procedure is outlined below:

1. The monitoring wells were dipped using a Solinst Interface meter to determine groundwater depth and the presence or absence of Free Phase Product in the form of diesel.
2. The wells were then low flow sampled using a peristaltic pump feeding to a flow cell which was monitored using a YSI probe to determine when the groundwater quality had stabilised. The latter was achieved from the electrical conductivity values had stabilised to within 10% of the previous reading.

3. The groundwater samples were also headspace screened using a calibrated and certified Photo Ionisation Detector (PID) at the time of sampling.
4. The samples were placed in a cool, dark container and sent via courier to a SANAS accredited laboratory for screening analysis accompanied by the appropriate Chain of Custody (COC) documentation.

3. FIELDWORK FINDINGS & SOURCE PATHWAY RECEPTOR CONSIDERATIONS

The monitoring well data has been included in **Table 2** and **3** below and includes the headspace volatile organic carbons (VOC) concentrations, static groundwater levels and water quality data from the current and previous assessment. Monitoring well THMW3 was moist at the bottom, and therefore no groundwater sample or field measurements could be recovered from this well.

Table 2: Monitoring Well Data

Well ID	Well Depth	08/07/2023		26/11/2024	
		SGL[1] (m bgl)	HC[2] (ppm)	SGL[1] (m bgl)	HC[2] (ppm)
THMW1	15	13.21	<1	13.78	< 1
THMW2	15	13.29	0	13.67	< 1
THMW3	15	Dry	-	14.87	-

1 Static groundwater level (meters below ground level)

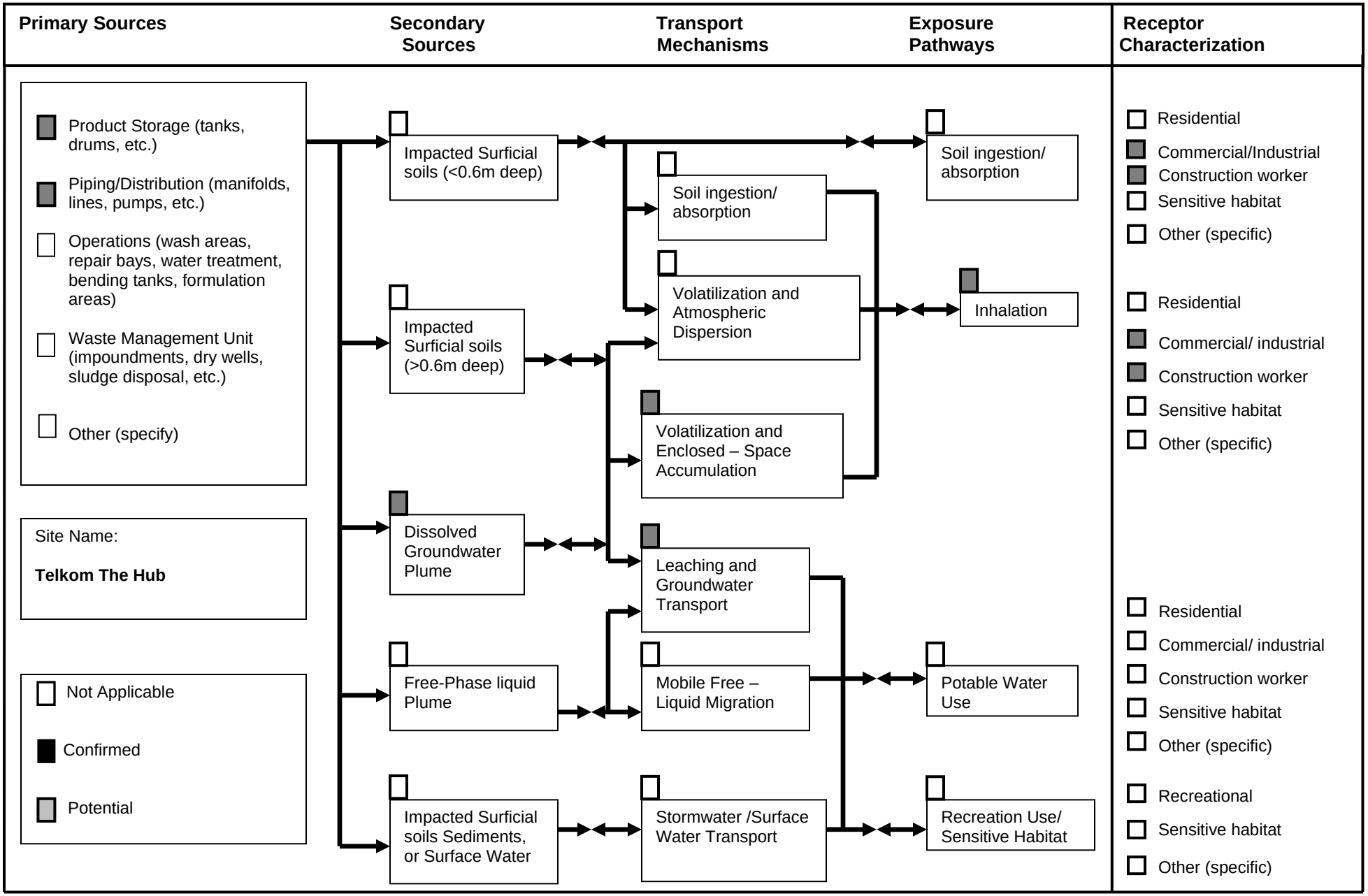
2 Head Space Concentration (parts per million)

Table 3: In-Situ Field Measurements

Sample Date		26/11/2024			SANS
Determinant	Units	THMW1	THMW2	THMW3	Drinking water
Groundwater Depth	m bgl	13.78	13.67	14.87	NVD
Temperature	°C	22.2	22.9	-	NVD
pH	pH	7.05	7.27	-	≥ 5 – ≤9.7
Electrical Conductivity	mS/m	935	918	-	≤170
Dissolved Oxygen	%	25.0	42.4	-	NVD
ORP	mV	190	174	-	NVD
Total Dissolved Solids	Mg/l	611	598	-	≤1 200

In order to assess the potential risk at the site, a graphic has been presented in **Figure 2** below, which identifies the likely source, pathway, and receptor linkages (SPR) and the identified potentially complete SPR linkages. The potential receptors considered are the current users on site. The identified potential exposure pathways include the inhalation of hydrocarbon vapours from indoor and outdoor air from a groundwater source.

Figure 2: Source-Pathway-Receptor



4. SCREENING TOOLS CONSIDERED & LABORATORY RESULTS

The laboratory results for the groundwater analyses are summarised in **Table 4** below and include the previous set of results for comparison. The results have been assessed using RISC (Risk Integrated Software for Clean-ups) Version 5, Tier 1 screening levels. The source pathway receptor scenarios considered for this site, were for the inhalation of indoor and outdoor air from a groundwater source in a commercial land-use type environment.

Where any of the laboratory results exceeded the screening values considered these results have been highlighted in red. Values highlighted in plain red have exceeded the RISC Screening Levels for a Tier 1 assessment. Values faded out are below the detection level for the analysis whilst screening levels faded out have not been exceeded.

RISC 5 Tier 1 is a general, conservative risk-based assessment. These assessments use conservative human health risk-based screening values for soil and water which have been calculated using accepted US EPA algorithms, toxicological data and exposure and point of receptor assumptions based on empirically derived data.

The laboratory result transcripts can be found in **APPENDIX A** below.

Table 4: Groundwater Analytical Results (mg/l)

Sampling Date	08/07/2023			26/11/2024			RISC Tier 1	
							Commercial Land-Use	
Determinant	THMW1 at 13.21 m bgl	THMW2 at 13.29 m bgl	THMW3	THMW1 at 13.78 m bgl	THMW2 at 13.67 m bgl	THMW3	Inhalation of Indoor Air[1]	Inhalation of Outdoor Air[1]
VOC-PID (ppm)	<1	0	Dry	<1	<1	Moist at bottom	NVD	NVD
GRO								
Methyl tert-Butyl Ether (MTBE)	<0.005	<0.005		<0.005	<0.005		2 418.946	>Sol
Tert-amyl Methyl Ether (TAME)	<0.005	<0.005		<0.005	<0.005		NVD	NVD
Benzene	<0.0004	<0.0004		<0.0004	<0.0004		0.066	26.265
Toluene	<0.001	<0.001		<0.001	<0.001		27.685	>Sol
Ethylbenzene	<0.0004	<0.0004		<0.0004	<0.0004		72.406	>Sol
m+p-Xylene o-Xylene	<0.0008	<0.0008		<0.0008	<0.0008		8.147	>Sol
Trimethylbenzene, 1,2,4-	<0.0004	<0.0004		<0.0004	<0.0004		NVD	NVD
Trimethylbenzene, 1,3,5-	<0.0004	<0.0004		<0.0004	<0.0004		NVD	NVD
Naphthalene	<0.0004	<0.0004		<0.0004	<0.0004		2.993	>Sol
TPH GRO C7 – C9	<0.01	<0.01		<0.01	<0.01		NVD	NVD
DRO								
TPH DRO C10 – C14	<0.06	<0.06		<0.06	<0.06		NVD	NVD
TPH DRO C15 – C36	<0.412	<0.412		<0.412	<0.412		NVD	NVD

1 Groundwater [mg/l] – Commercial land use

5. FINDING & COMMENTS

1. One of the monitoring wells THMW3 was again dry. The current average static groundwater level on site in the other two holes as of 26/11/2024 was 13.73, which is 0.48 m bgl deeper than the previous results in July 2023.
2. PID headspace screening values were low and were <1 in both THMW1 and THMW2
3. The laboratory results for the groundwater samples indicated none-detectable levels for all BTEXN compounds, including the additives MTBE and TAME.
4. In terms of the TPH banding analysis results, the C_7 – C_9 carbon group (GRO range), non-detectable levels were encountered in both groundwater samples analysed.
5. Non-detectable levels of the C_{10} – C_{14} and C_{15} – C_{36} carbon groups (DRO range) were encountered in both groundwater samples analysed.

6. In terms of assessing the risk associated with the groundwater, the risk scenarios considered for the site were for the inhalation of indoor and outdoor air from a groundwater source in a commercial land-use environment, which indicated the following:
    a. The Tier 1 screening levels for the risk scenarios considered for the site were not exceeded.
7. Based on the risk scenarios considered for the site, the fieldwork carried out and laboratory results received, there is a no potential risk currently defined to on-site receptors from a groundwater source.

6. RECOMMENDATIONS

Based on the work completed at the site and the current assessment finding, the following is recommended:

1. Annual sampling of the monitoring wells should be continued so that any potential subsurface impacts of the fuel storage facility can be determined, and action taken as required at that time.
2. Ideally sampling should be carried out much earlier in the year and typically during the wetter parts of the year in June to August to enable sampling and adequate water in the monitoring wells.

We trust that this summary report contains sufficient information. Should you have any further questions please contact the author.

Report compiled by:	**Report reviewed by:**
Adriaan Botha	Adrian Sillito
Pr. Sci. Nat Registration Number 123032	*Pr. Sci. Nat Registration Number 400046/93*

APPENDIX A:
LABORATORY RESULTS

ENVIRONMENTAL POLLUTION LABORATORY

TEST REPORT
55033A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

Client: Sillito Environmental Consulting
Address: Suite 401,Tokai on Main, 2 Burchell Road
Tokai, Cape Town
7945

Attention: Adriaan Botha
Tel: (021) 712-5060
Email: adrian@environmentalconsultants.co.za; a.both

Project number: E21102
Project name: Telkom - Telkom Park Hub

Sample Information

Sample ID: **THMW1**
Dilutions: BTEX/GRO = No Dilution, TPH = No Dilution
Container: Glass

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2024/11/27
Date Analysed: 2024/11/27
Date Issued: 2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	<60 µg/liter
TPH C15-C36	<412 µg/liter
TPH C10-C36 Total	<412 µg/liter

Disclaimers

1) The results only relate to the test items provided, in the condition as received.
2) This report may not be reproduced, except in full, without the prior written approval of the laboratory.
3) Parameters marked " * " are not included in the SANAS Schedule of Accreditation for this laboratory.
4) A = Concentration outside calibration range, O = Outsourced analysis, UTD = Unable to Determine.
5) Uncertainty of measurement for all methods included in the SANAS Schedule of Accreditation is available on request.

Jan-Daniël Vorster
Authorised Signatory

www.epl.co.za 13 Sovereign Drive Route21 Corporate Park Irene South Africa Tel: +27 12 345 1004 info@epl.co.za

ENVIRONMENTAL POLLUTION LABORATORY

TEST REPORT
55033A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

Client: Sillito Environmental Consulting
Address: Suite 401,Tokai on Main, 2 Burchell Road
Tokai, Cape Town
7945

Attention: Adriaan Botha
Tel: (021) 712-5060
Email: adrian@environmentalconsultants.co.za; a.both

Project number: E21102
Project name: Telkom - Telkom Park Hub

Sample Information

Sample ID: **THMW2**
Dilutions: BTEX/GRO = No Dilution, TPH = No Dilution
Container: Glass

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2024/11/27
Date Analysed: 2024/11/27
Date Issued: 2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	<60 µg/liter
TPH C15-C36	<412 µg/liter
TPH C10-C36 Total	<412 µg/liter

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GYRO GROUP

DIESEL TANK COMPLIANCE

GROUNDWATER MONITORING REPORT

Telkom The Nexus

December 2024

SEC REFERENCE NUMBER: E21102

PO Box 30134, Tokai, 7966
Telephone: 021 712 5060
Email: info@environmentalconsultants.co.za

Suite 105 Block B2 Tokai Village Centre
Vans Road, Tokai, 7945
Directors: Adrian Sillito (Managing) & Diane Sillito

Reg No: 201502800407

Site contact name:	Francois Scholtz	**Contact Details:**	082 373 4349
Date of assessment:	26 November 2024	**Report compiled by:**	Sillito Environmental Consulting (Pty) Ltd

The Gyro Group requested Sillito Environmental Consulting (Pty) Ltd (SEC) to initially conduct Phase 1 assessments across a number of sites across South Africa. The aim of these assessments was to provide an indication of the environmental setting of the site, the location and accessibility of the Underground Storage Tanks (USTs) and the associated fuel delivery infrastructure and a preliminary indication of the potential risk associated with the historic fuel storage at the site. Upon completion of this work SEC was subsequently requested to complete Phase II Assessments at these sites. The aim of the Phase II assessments was to install and develop monitoring wells, as well as to identify any contamination in the drill chips and to sample the wells once they have stabilized.

The Phase II Assessments recommended that annual groundwater monitoring be undertaken at the sites. SEC was requested to undertake the groundwater monitoring as per these recommendations. The scope of work for the groundwater monitoring is defined as follows:

1. Obtaining the required approvals prior to proceeding with the fieldwork.
2. Identifying the monitoring wells, inspecting them, and assessing their condition.
3. Record field measurements for the groundwater in each well where groundwater was present.
4. Recover water samples from each well.
5. Reporting and recommendations based on the laboratory and fieldwork results.

This current report present the results of the annual ground water sampling carried out at this site.

1.Site details:

Site Name	Telkom Nexus		
Site Address	61 Oak Avenue, Highveld Centurion	**Telephone Number:**	082 373 4349
		Fax Number:	
GPS coordinates:	25°52'42.54"S	**Landowner:**	Telkom
	28°11'7.48"E	**Telephone Number:**	012 680 6139
Current supplier:	Bidvest	**Total throughput/month:**	Unknown
Reconciliation records kept (dip records):	The tank is electronically monitored onsite by Bidvest	**Previous Tank Repairs:**	According to the site contact (Francois Scholtz) no repairs were conducted on the UST
		Previous pipeline Repairs:	None
Description of current and historical use of property:	The site is a Telkom exchange and data centre.		
Description of land-use immediately adjacent to the UST/site	**North:**	Site boundary, beyond which is Oak Avenue, beyond which are commercial activities	
	East:	The Nexus complex, beyond which is covered parking, beyond which is M36 Highway, beyond which are residential activities	

	South	Covered parking, beyond which is site boundary, beyond which is M36 Highway, beyond which are residential activities
	West:	Site boundary, beyond which is Oak Avenue, beyond which are commercial activities

2.Tankage:

	Tank number:	**Capacity (litres)**	**Product:**	**Estimated age of tank:**	**Tank construction details:**	**Comments:**
Underground storage tanks (USTs)	1	23 000	Diesel	Unknown	Steel	Operational and in use
	2	23 000	Diesel	Unknown	Steel	Operational and in use
	3	14 000	Diesel	Unknown	Steel	Operational and in use
	4	14 000	Diesel	Unknown	Steel	Operational and in use
Integrity testing:	**Type of testing:**	According to the previous site contact (Francois XX), vacusonic and water ingress tests are conducted on a regular basis, however, the site contact could not provide the exact dates when the tests are conducted.				
	Date of last test:	Could not be confirmed				

Pumps (Y/N)	**Type**	**Submersible**	**N**	**Suction**	**Y**	**Leak Detectors**	**Y**

Site observations (surface staining, housekeeping etc.):	• The four (4) USTs are remote filled and are located on one tank farm. • The remote fillers are housed in brick manholes with no proper containment manholes. • The tank access manholes were found to be sealed with no secondary containment. • No hydrocarbon staining was observed in the vicinity of the filler points and tank manholes. • Seven (7) tank leak detection wells (TLDWs) were observed in the vicinity of the tank farm. Upon inspection, the wells were found to be dry at an average depth of 2.5m bgl.

3.Environmental Setting:

Hydrocensus and NGA search results:	• No registered groundwater users were identified within close proximity to the site.
Sensitive receptors (rivers, streams, wetlands, schools etc.)	• None

1. GEOHYDROLOGICAL SETTING

Based on the fieldwork assessment as well as reference to Google Earth the site has a slight slope to the north of <2°.

The 1: 250 000 scale geological map for the area (2528 Johannesburg) indicates that the site is underlain at depth by the Malmani Subgroup bedrock comprising dolomite, stromatolitic, interbedded chert, minor carbonaceous shale, limestone, and quartzite. During the drilling of the monitoring wells a summary of the soil profile encountered is presented in Section 4 below.

The 1:500 000 scale hydrogeological map series and the 1:3 000 000 scale Aquifer Classification Map of South Africa compiled by the Department of Water and Sanitation indicates that the site is underlain predominantly carbonate rocks (dolomite). This results in the formation of a karst aquifer in this area with borehole yields typically ranging from > 5.0 l/s.

The aquifer is further classified as having a high vulnerability[1] and a high susceptibility[2] rating. Water quality is good with electrical conductivity values ranging between 0 and 70 mS/m.

The aquifer is further classified as having a most vulnerability[3] and a high susceptibility[4] rating. Water quality is moderate with electrical conductivity values ranging between 70 and 300 mS/m.

Please refer to **Figure 1** for the site location information and new monitoring well positions.

[1] Vulnerability**:** likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer
[2] Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.
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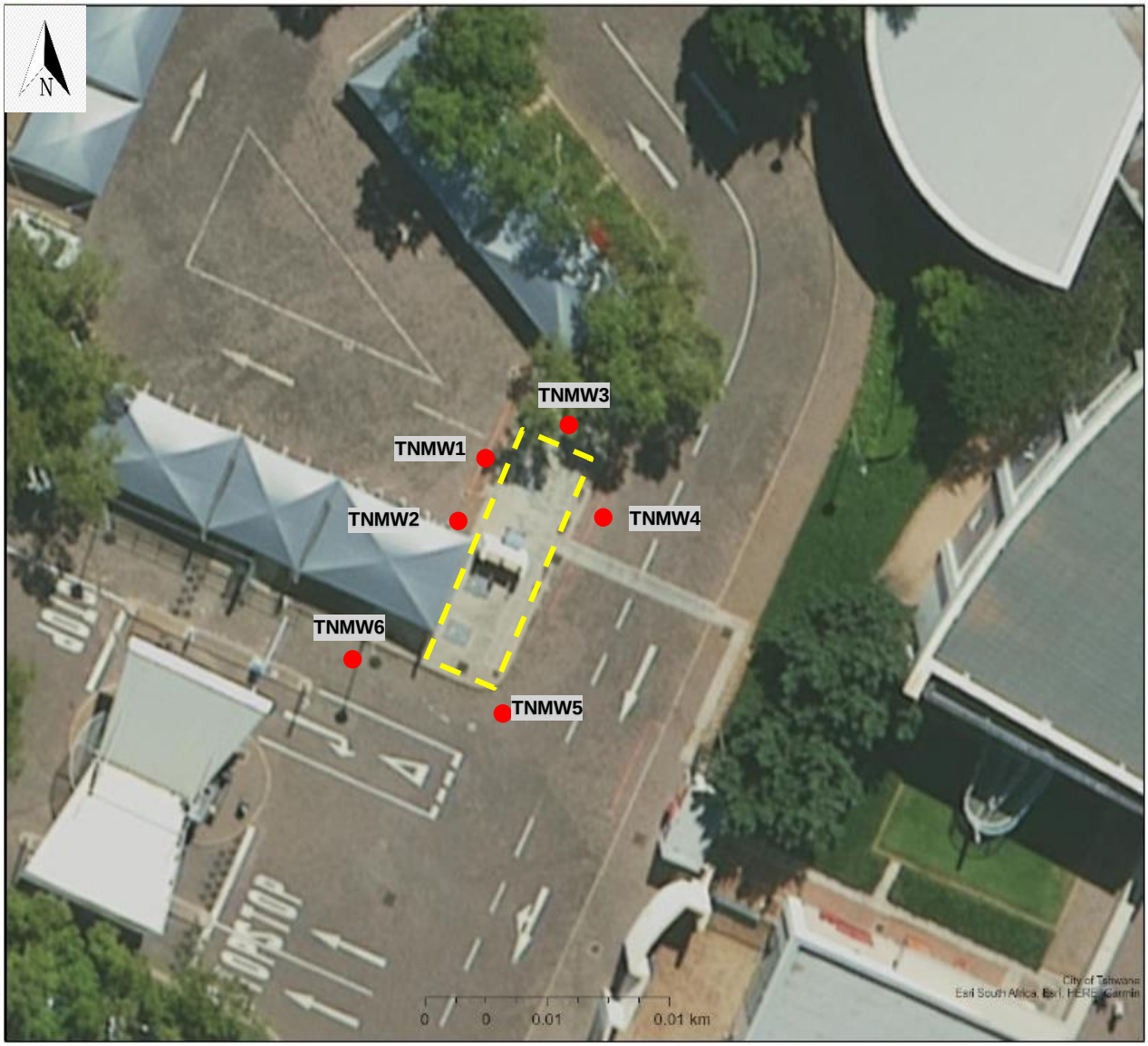
Figure 1: Site Locality Map & Monitoring Well Location



Title	Project Title	Project Number	Legend:		
Site Image	Telkom The Nexus	E21102		Tank Farm Location	Monitoring Well

2. PROJECT METHODOLOGY

The assessment included the dipping and sampling of all located monitoring wells using a Solinst Interface Probe. The two monitoring wells that were installed in July 2023 were located, inspected, dipped, and sampled. The sampling procedure is outlined below:

1. The monitoring wells were dipped using a Solinst Interface meter to determine groundwater depth and the presence or absence of Free Phase Product in the form of diesel.

2. The wells were then low flow sampled using a peristaltic pump feeding to a flow cell which was monitored using a YSI probe to determine when the groundwater quality had stabilised. The latter was achieved from the electrical conductivity values had stabilised to within 10% of the previous reading.
3. The groundwater samples were also headspace screened using a calibrated and certified Photo Ionisation Detector (PID) at the time of sampling.
4. The samples were placed in a cool, dark container and sent via courier to a SANAS accredited laboratory for screening analysis accompanied by the appropriate Chain of Custody (COC) documentation.

3. FIELDWORK FINDINGS & SOURCE PATHWAY RECEPTOR CONSIDERATIONS

The monitoring well data has been included in **Table 2** and **3** below and includes the headspace volatile organic carbons (VOC) concentrations, static groundwater levels and water quality data from the current and previous assessment. A slight hydrocarbon odour was noted in both monitoring wells TNMW1 and TNMW3.

Table 2: Monitoring Well Data

Well ID	Well Depth	08/07/2023		26/11/2024	
		SGL[1] (m bgl)	HC[2] (ppm)	SGL[1] (m bgl)	HC[2] (ppm)
TNMW1	15	8.70	< 1	9.24	55
TNMW2	15	8.77	2	9.08	3
TNMW3	15	9.07	2	9.11	52
TNMW4	15	9.00	< 1	7.94	2
TNMW5	15	8.72	< 1	8.15	2
TNMW6	15	8.75	0	9.33	< 1

1 Static groundwater level (meters below ground level)

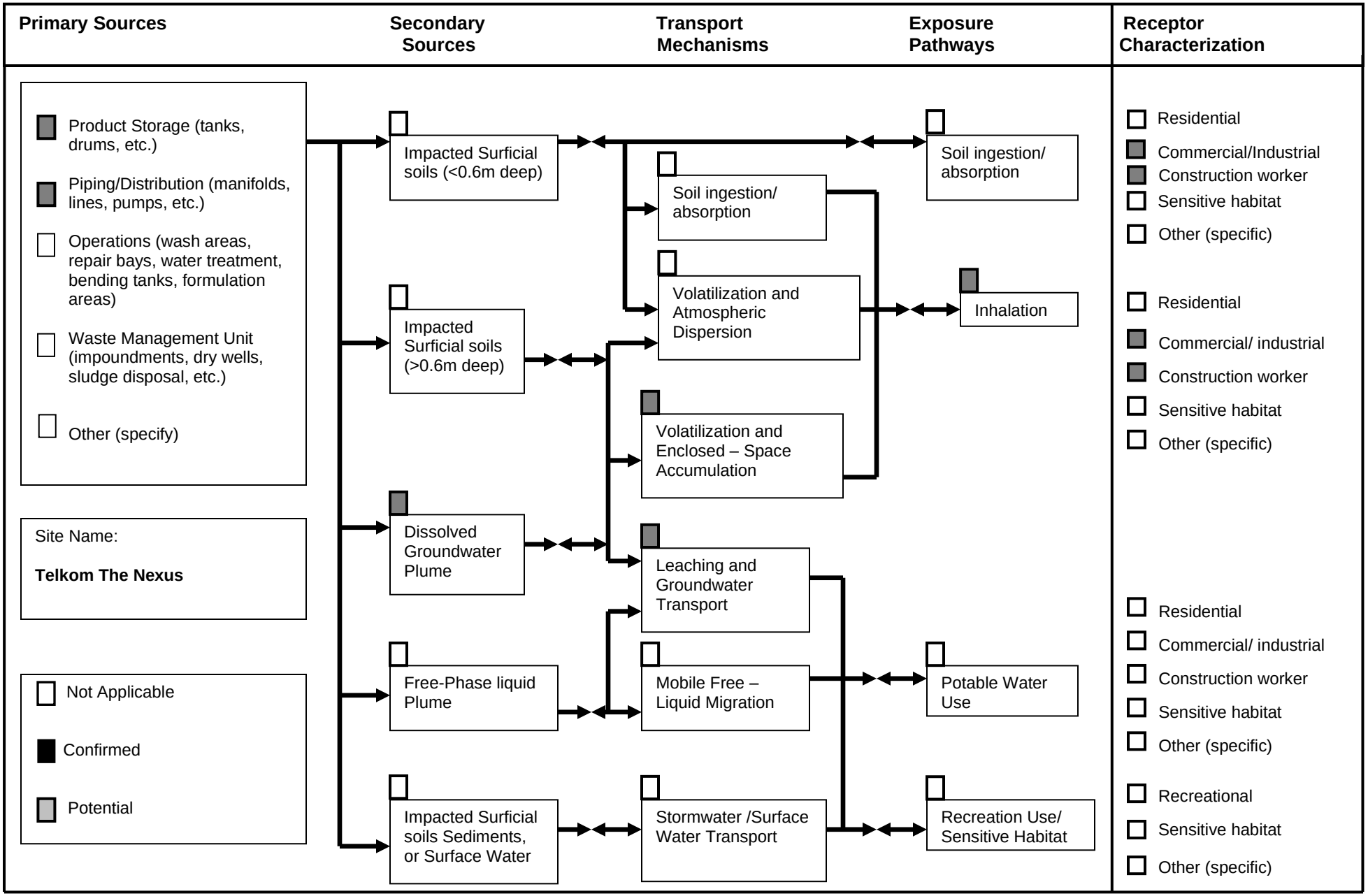
2 Head Space Concentration (parts per million)

Table 3: In-Situ Field Measurements

Sample Date		26/11/2024						SANS
Determinant	Units	TNMW1	TNMW2	TNMW3	TNMW4	TNMW5	TNMW6	Drinking water
Groundwater Depth	m bgl	9.24	9.08	9.11	7.94	8.15	9.33	NVD
Temperature	°C	23.4	23.0	23.8	26.0	25.4	23.1	NVD
pH	pH	6.90	6.57	6.90	6.80	6.70	6.74	≥ 5 – ≤9.7
Electrical Conductivity	mS/m	561	1 199	493	1 229	622	1 439	≤170
Dissolved Oxygen	%	22.3	13.6	11.5	14.6	13.2	9.6	NVD
ORP	mV	186	15	35	123	124	145	NVD
Total Dissolved Solids	Mg/l	364	780	320	799	403	936	≤1 200

In order to assess the potential risk at the site, a graphic has been presented in **Figure 2** below, which identifies the likely source, pathway, and receptor linkages (SPR) and the identified potentially complete SPR linkages. The potential receptors considered are the current users on site. The identified potential exposure pathways include the inhalation of hydrocarbon vapours from indoor and outdoor air from a groundwater source.

Figure 2: Source-Pathway-Receptor



4. SCREENING TOOLS CONSIDERED & LABORATORY RESULTS

The laboratory results for the groundwater analyses are summarised in **Table 4** below and include the previous set of results for comparison. The results have been assessed using RISC (Risk Integrated Software for Clean-ups) Version 5, Tier 1 screening levels. The source pathway receptor scenarios considered for this site, were for the inhalation of indoor and outdoor air from a groundwater source in a commercial land-use type environment.

Where any of the laboratory results exceeded the screening values considered these results have been highlighted in red. Values highlighted in plain red have exceeded the RISC Screening Levels for a Tier 1 assessment. Values faded out are below the detection level for the analysis whilst screening levels faded out have not been exceeded.

RISC 5 Tier 1 is a general, conservative risk-based assessment. These assessments use conservative human health risk-based screening values for soil and water which have been calculated using accepted US EPA algorithms, toxicological data and exposure and point of receptor assumptions based on empirically derived data.

The laboratory result transcripts can be found in **APPENDIX A** below.

Table 4: Groundwater Analytical Results (mg/l)

Sampling Date	08/07/2023						26/11/2024						RISC Tier 1	
													Commercial Land-Use	
Determinant	TNMW1 at 8.70 m bgl	TNMW2 at 8.77 m bgl	TNMW3 at 9.07 m bgl	TNMW4 at 9.00 m bgl	TNMW5 at 8.72 m bgl	TNMW6 at 8.75 m bgl	TNMW1 at 9.24 m bgl	TNMW2 at 9.08 m bgl	TNWM3 at 9.11 m bgl	TNMW4 at 7.94 m bgl	TNMW5 at 8.15 m bgl	TNMW6 at 9.33 m bgl	Inhalation of Indoor Air[1]	Inhalation of Outdoor Air[1]
VOC-PID (ppm)	< 1	2	2	< 1	< 1	< 1	55	3	52	2	2	< 1	NVD	NVD
GRO														
Methyl tert-Butyl Ether (MTBE)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	2 418.946	>Sol
Tert-amyl Methyl Ether (TAME)	0.0089	0.029	0.024	0.0064	<0.005	<0.005	0.018	0.014	<0.005	0.023	<0.005	<0.005	NVD	NVD
Benzene	<0.0004	0.011	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.066	26.265
Toluene	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	27.685	>Sol
Ethylbenzene	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	72.406	>Sol
Xylenes	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	8.147	>Sol
Trimethylbenzene, 1,2,4-	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	NVD	NVD
Trimethylbenzene, 1,3,5-	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	NVD	NVD
Naphthalene	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	2.993	>Sol
TPH GRO C7 – C9	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	NVD	NVD
DRO														
TPH DRO C10 – C14	< 0.060	< 0.060	< 0.060	< 0.060	< 0.060	< 0.060	0.67	0.29	0.42	< 0.060	< 0.060	< 0.060	NVD	NVD
TPH DRO C15 – C36	< 0.412	< 0.412	< 0.412	< 0.412	< 0.412	< 0.412	4.5	1.4	3.4	< 0.412	< 0.412	< 0.412	NVD	NVD

1 Groundwater [mg/l] – Commercial land use

5. FINDING & COMMENTS

1. The current average static groundwater level on site as of 26/11/2024 was 8.81 m bgl, which is 0.06m deeper than the previous results in July 2023.
2. PID headspace screening values ranged from < 1 to 55 ppm with hydrocarbons detected in all wells this time and typically at a higher level than previously. The highest headspace value of 55 ppm was recorded in monitoring well TNMW1, which had a slight hydrocarbon odour. TNMW3 also had a slight hydrocarbon odour and had a PID screening value of 52 ppm.
3. The laboratory results for the groundwater samples showed that TAME (a petrol additive) was detected in monitoring wells TNMW1, 2 and 4, previously it was detected in wells TNMW1 to 4 inclusive. This shows an ongoing presence of these additives.
4. In terms of the TPH banding analysis results, the C_7 – C_9 carbon group (GRO range), non-detectable levels were encountered in both groundwater samples analysed.
5. DRO range carbon groups (C_{10} – C_{14} and C_{15} – C_{36}) were detected in wells TNMW1, 2 and 3 for the first time. This may be indicative of a loss of containment as these wells are located on the downgradient side of the tank farm area. A likely scenario could be an overfill during a fuel delivery.
6. In terms of assessing the risk associated with the groundwater, the risk scenarios considered for the site were for the inhalation of indoor and outdoor air from a groundwater source in a commercial land-use environment, which indicated the following:
    a. The Tier 1 screening levels for the risk scenarios considered for the site were not exceeded.
7. Based on the risk scenarios considered for the site, the fieldwork carried out and laboratory results received, there is a no potential risk currently defined to on-site receptors from a groundwater source. However, the presence of DRO compounds in TNMW1, 2 and 3 is concerning and should be monitored.

6. RECOMMENDATIONS

Based on the work completed at the site and the current assessment finding, the following is recommended:

1. The ongoing presence of the additive TAME and the new presence of Diesel Range Organics (DRO) in the groundwater in three of the downgradient wells should be monitored.
2. Annual sampling of the monitoring wells should be continued so that any potential subsurface impacts of the fuel storage facility can be determined, and action taken as required at that time.
3. Should a persistent presence of TAME and DRO occur during the next sampling event, consideration should then be given to investigating the source. The latter could include a stock reconciliation to determine

if a fuel delivery shortfall has occurred after which it could be expanded to testing the tank and piping infrastructure.

We trust that this summary report contains sufficient information. Should you have any further questions please contact the author.

Report compiled by:	**Report reviewed by:**
Adriaan Botha	Adrian Sillito
Pr. Sci. Nat Registration Number 123032	*Pr. Sci. Nat Registration Number 400046/93*

SILLITO ENVIRONMENTAL CONSULTING

APPENDIX A:
LABORATORY RESULTS

ENVIRONMENTAL POLLUTION LABORATORY

sanas Testing Laboratory T0419

TEST REPORT 55026A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

Client:	Sillito Environmental Consulting				
Address:	Suite 401,Tokai on Main, 2 Burchell Road Tokai, Cape Town 7945	**Attention:** **Tel:** **Email:**	Adriaan Botha (021) 712-5060 adrian@environmentalconsultants.co.za; a.both	**Project number:** **Project name:**	E21102 Telkom - Telkom Park Nexus

Sample Information

Sample ID:	**TNMW1**	**Matrix:**	Water	**Date Received:**	2024/11/27
Dilutions:	BTEX/GRO = No Dilution, TPH = No Dilution	**Storage:**	Fridge at 0-6°C	**Date Analysed:**	2024/11/28
Container:	Glass			**Date Issued:**	2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	18 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	670 µg/liter
TPH C15-C36	4500 µg/liter
TPH C10-C36 Total	5170 µg/liter

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ENVIRONMENTAL POLLUTION LABORATORY

sanas Testing Laboratory T0419

TEST REPORT 55026A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

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Sample Information

Sample ID:	**TNMW2**	**Matrix:**	Water	**Date Received:**	2024/11/27
Dilutions:	BTEX/GRO = No Dilution, TPH = No Dilution	**Storage:**	Fridge at 0-6°C	**Date Analysed:**	2024/11/28
Container:	Glass			**Date Issued:**	2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT	
MTBE	<5	µg/liter
TAME	14	µg/liter
Benzene	<0.4	µg/liter
Toluene	<1	µg/liter
Ethylbenzene	<0.4	µg/liter
m+p-Xylene	<0.8	µg/liter
o-Xylene	<0.4	µg/liter
1,3,5-Trimethylbenzene	<0.4	µg/liter
1,2,4-Trimethylbenzene	<0.4	µg/liter
Naphthalene	<0.4	µg/liter
TPH GRO C7-C9	<10	µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT	
TPH C10-C14	290	µg/liter
TPH C15-C36	1400	µg/liter
TPH C10-C36 Total	1690	µg/liter

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sanas Testing Laboratory T0419

TEST REPORT 55026A

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Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

Client: Sillito Environmental Consulting
Address: Suite 401,Tokai on Main, 2 Burchell Road
Tokai, Cape Town
7945

Attention: Adriaan Botha
Tel: (021) 712-5060
Email: adrian@environmentalconsultants.co.za; a.both

Project number: E21102
Project name: Telkom - Telkom Park Nexus

Sample Information

Sample ID: **TNMW3**
Dilutions: BTEX/GRO = No Dilution, TPH = No Dilution
Container: Glass

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2024/11/27
Date Analysed: 2024/11/28
Date Issued: 2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	420 µg/liter
TPH C15-C36	3400 µg/liter
TPH C10-C36 Total	3820 µg/liter

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ENVIRONMENTAL POLLUTION LABORATORY

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TEST REPORT 55026A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

Client:	Sillito Environmental Consulting				
Address:	Suite 401,Tokai on Main, 2 Burchell Road Tokai, Cape Town 7945	**Attention:** **Tel:** **Email:**	Adriaan Botha (021) 712-5060 adrian@environmentalconsultants.co.za; a.both	**Project number:** **Project name:**	E21102 Telkom - Telkom Park Nexus

Sample Information

Sample ID:	**TNMW4**	**Matrix:**	Water	**Date Received:**	2024/11/27
Dilutions:	BTEX/GRO = No Dilution, TPH = No Dilution	**Storage:**	Fridge at 0-6°C	**Date Analysed:**	2024/11/28
Container:	Glass			**Date Issued:**	2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	23 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	<60 µg/liter
TPH C15-C36	<412 µg/liter
TPH C10-C36 Total	<412 µg/liter

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TEST REPORT 55026A

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Client and Project Information

Client: Sillito Environmental Consulting
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Tokai, Cape Town
7945

Attention: Adriaan Botha
Tel: (021) 712-5060
Email: adrian@environmentalconsultants.co.za; a.both

Project number: E21102
Project name: Telkom - Telkom Park Nexus

Sample Information

Sample ID: **TNMW5**
Dilutions: BTEX/GRO = No Dilution, TPH = No Dilution
Container: Glass

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2024/11/27
Date Analysed: 2024/11/28
Date Issued: 2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	<60 µg/liter
TPH C15-C36	<412 µg/liter
TPH C10-C36 Total	<412 µg/liter

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Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

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7945

Attention: Adriaan Botha
Tel: (021) 712-5060
Email: adrian@environmentalconsultants.co.za; a.both

Project number: E21102
Project name: Telkom - Telkom Park Nexus

Sample Information

Sample ID: **TNMW6**
Dilutions: BTEX/GRO = No Dilution, TPH = No Dilution
Container: Glass

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2024/11/27
Date Analysed: 2024/11/28
Date Issued: 2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	<60 µg/liter
TPH C15-C36	<412 µg/liter
TPH C10-C36 Total	<412 µg/liter

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ENVIRONMENTAL POLLUTION LABORATORY

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TEST REPORT 55026A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

Client:	Sillito Environmental Consulting				
Address:	Suite 401,Tokai on Main, 2 Burchell Road Tokai, Cape Town 7945	**Attention:** **Tel:** **Email:**	Adriaan Botha (021) 712-5060 adrian@environmentalconsultants.co.za; a.both	**Project number:** **Project name:**	E21102 Telkom - Telkom Park Nexus

Sample Information

Sample ID:	**TNMW1**	**Matrix:**	Water	**Date Received:**	2024/11/27
Dilutions:	BTEX/GRO = No Dilution, TPH = No Dilution	**Storage:**	Fridge at 0-6°C	**Date Analysed:**	2024/11/28
Container:	Glass			**Date Issued:**	2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	18 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	670 µg/liter
TPH C15-C36	4500 µg/liter
TPH C10-C36 Total	5170 µg/liter

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Sample Information

Sample ID:	**TNMW2**	**Matrix:**	Water	**Date Received:**	2024/11/27
Dilutions:	BTEX/GRO = No Dilution, TPH = No Dilution	**Storage:**	Fridge at 0-6°C	**Date Analysed:**	2024/11/28
Container:	Glass			**Date Issued:**	2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT	
MTBE	<5	µg/liter
TAME	14	µg/liter
Benzene	<0.4	µg/liter
Toluene	<1	µg/liter
Ethylbenzene	<0.4	µg/liter
m+p-Xylene	<0.8	µg/liter
o-Xylene	<0.4	µg/liter
1,3,5-Trimethylbenzene	<0.4	µg/liter
1,2,4-Trimethylbenzene	<0.4	µg/liter
Naphthalene	<0.4	µg/liter
TPH GRO C7-C9	<10	µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT	
TPH C10-C14	290	µg/liter
TPH C15-C36	1400	µg/liter
TPH C10-C36 Total	1690	µg/liter

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7945

Attention: Adriaan Botha
Tel: (021) 712-5060
Email: adrian@environmentalconsultants.co.za; a.both

Project number: E21102
Project name: Telkom - Telkom Park Nexus

Sample Information

Sample ID: **TNMW3**
Dilutions: BTEX/GRO = No Dilution, TPH = No Dilution
Container: Glass

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2024/11/27
Date Analysed: 2024/11/28
Date Issued: 2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	420 µg/liter
TPH C15-C36	3400 µg/liter
TPH C10-C36 Total	3820 µg/liter

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Client and Project Information

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Sample Information

Sample ID:	**TNMW4**	**Matrix:**	Water	**Date Received:**	2024/11/27
Dilutions:	BTEX/GRO = No Dilution, TPH = No Dilution	**Storage:**	Fridge at 0-6°C	**Date Analysed:**	2024/11/28
Container:	Glass			**Date Issued:**	2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	23 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	<60 µg/liter
TPH C15-C36	<412 µg/liter
TPH C10-C36 Total	<412 µg/liter

Disclaimers

1) The results only relate to the test items provided, in the condition as received.
2) This report may not be reproduced, except in full, without the prior written approval of the laboratory.
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4) A = Concentration outside calibration range, O = Outsourced analysis, UTD = Unable to Determine.
5) Uncertainty of measurement for all methods included in the SANAS Schedule of Accreditation is available on request.

Jan-Daniël Vorster
Authorised Signatory

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ENVIRONMENTAL POLLUTION LABORATORY

sanas Testing Laboratory T0419

TEST REPORT 55026A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

Client: Sillito Environmental Consulting
Address: Suite 401,Tokai on Main, 2 Burchell Road
Tokai, Cape Town
7945

Attention: Adriaan Botha
Tel: (021) 712-5060
Email: adrian@environmentalconsultants.co.za; a.both

Project number: E21102
Project name: Telkom - Telkom Park Nexus

Sample Information

Sample ID: **TNMW5**
Dilutions: BTEX/GRO = No Dilution, TPH = No Dilution
Container: Glass

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2024/11/27
Date Analysed: 2024/11/28
Date Issued: 2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	<60 µg/liter
TPH C15-C36	<412 µg/liter
TPH C10-C36 Total	<412 µg/liter

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ENVIRONMENTAL POLLUTION LABORATORY

sanas Testing Laboratory T0419

TEST REPORT 55026A

Test Description: BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons
Test Method: EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

Client and Project Information

Client: Sillito Environmental Consulting
Address: Suite 401,Tokai on Main, 2 Burchell Road
Tokai, Cape Town
7945

Attention: Adriaan Botha
Tel: (021) 712-5060
Email: adrian@environmentalconsultants.co.za; a.both

Project number: E21102
Project name: Telkom - Telkom Park Nexus

Sample Information

Sample ID: **TNMW6**
Dilutions: BTEX/GRO = No Dilution, TPH = No Dilution
Container: Glass

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2024/11/27
Date Analysed: 2024/11/28
Date Issued: 2024/12/03

BTEXMN and Gasoline Range Organics

PARAMETER	RESULT
MTBE	<5 µg/liter
TAME	<5 µg/liter
Benzene	<0.4 µg/liter
Toluene	<1 µg/liter
Ethylbenzene	<0.4 µg/liter
m+p-Xylene	<0.8 µg/liter
o-Xylene	<0.4 µg/liter
1,3,5-Trimethylbenzene	<0.4 µg/liter
1,2,4-Trimethylbenzene	<0.4 µg/liter
Naphthalene	<0.4 µg/liter
TPH GRO C7-C9	<10 µg/liter

Total Petroleum Hydrocarbon (C10-C36)

PARAMETER	RESULT
TPH C10-C14	<60 µg/liter
TPH C15-C36	<412 µg/liter
TPH C10-C36 Total	<412 µg/liter

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