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TRANS-CALEDON TUNNEL AUTHORITY
Consulting Services for the Mokolo Crocodile Water Augmentation Project Phase 2 (MCWAP-2)

Environmental Baseline Report for Groundwater Monitoring Quarter 3 Report

Prepared for:

GBN JOINT VENTURE

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G	March 2021	AM		AvZ				Q3 Monitoring

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CEMPr	Construction Environmental Management Programme Report
DWS	Department of Water and Sanitation
EC	Electrical Conductivity
GBN	Gibb-Bigen-Nyeleti
GIS	Graphical Information System
IWUL	Integrated Water Use Licence
km	Kilometre
m	Metres
m/d	Metres per Day
m^2/d	Metres Squared per Day
mamsl	Metres Above Mean Sea Level
mbgl	Metres Below Ground Level
MCWAP-2	Mokolo Crocodile River Water Augmentation Project (Phase 2)
mg/l	Milligrams per Litre
mm	Millimetre
MSDS	Material Safety Data Sheets
SANAS	South African National Accreditation System
SANS	South African National Standards
TDS	Total Dissolved Solids
ToR	Terms of Reference
WISH	Windows Interpretation System for Hydrogeologists
WMA	Water Management Area
WRC	Water Research Commission

1. Introduction

Digby Wells Environmental (hereinafter Digby Wells) was requested by Gibb-Bigen-Nyeleti (GBN) Joint Venture (hereinafter GBN) to undertake groundwater quality monitoring for the Mokolo Crocodile Water Augmentation Project (Phase 2) (MCWAP-2).

This report constitutes the third quarterly Environmental Baseline Groundwater Monitoring Report.

1.1. Project Background

The MCWAP-2 pipeline is a Strategic Infrastructure Project (SIP) initiated to promote the future development potential of the Waterberg Coalfield near Lephalale (Limpopo Province). Lephalale has limited water availability and the demand for water is anticipated to increase significantly as planned developments are implemented. The Department of Water and Sanitation (DWS) undertook a feasibility study in 2010 to establish how the future water demands could be addressed, through the Mokolo Crocodile River Water Augmentation Project (MCWAP). Two phases to this project were identified (GBN Joint Venture, 2020) (Nemai Consulting, 2018):

- Phase 1: MCWAP-1 has been operational since June 2015. This phase involved augmenting the water supply to the Mokolo Dam as an interim measure until a water transfer pipeline could be established from the Crocodile River (West). Water supply from this phase is geared towards existing consumers (i.e., Matimba and Medupi Power Stations and Lephalale municipal users (GBN Joint Venture, 2020);
- Phase 2: MCWAP-2 is currently in the pre-construction phase. This phase involves the construction and operation of the water transfer pipeline from the Crocodile River (West) to Lephalale, which includes a River Management System for the Crocodile River (West) and its tributaries. Water supply from this phase is geared towards new consumers (i.e., Eskom's flue gas desulphurisation project) (GBN Joint Venture, 2020).

The southernmost location of the MCWAP-2 pipeline begins in the Vlieëpoort Mountain range in which the location of the abstraction weir is positioned in a narrow valley created by the Crocodile River (West). The pipeline thereafter follows a predominantly northerly direction (along existing roads, farm boundaries and railway lines) towards Steenbokpan. The pipeline then deviates to the east towards Lephalale. The MCWAP-2 project will make use of the following components (Figure 1) (GBN Joint Venture, 2020):

- Water transfer infrastructure:
  - Vlieëpoort abstraction works (diversion weir and various boulder, gravel and sand traps);
  - 136 km pipeline sections of varying diameters (900 mm to 1400 mm);
  - Low and high lift pump stations;

- Reservoirs;
- Ancillary infrastructure (i.e., operational control centre, offices, housing and workshops);

- Borrow pits for construction material;
- River Management System to manage abstractions:
  - The Crocodile River (West) between Hartbeespoort Dam and Vlieëpoort Weir;
  - The Moretele River between Klipvoor Dam and the confluence with the Crocodile River (West);
  - The Elands River between Vaalkop Dam and the confluence with the Crocodile River (West); and
  - The flow required past Vlieëpoort.

1.2. Objective

The object of the MCWAP-2 groundwater assessment is to establish a baseline water quality and level survey along the entire pipeline route, prior to commencing with construction activities. The baseline assessment will be used to identify any changes in water quality or levels as construction of the pipeline progresses.

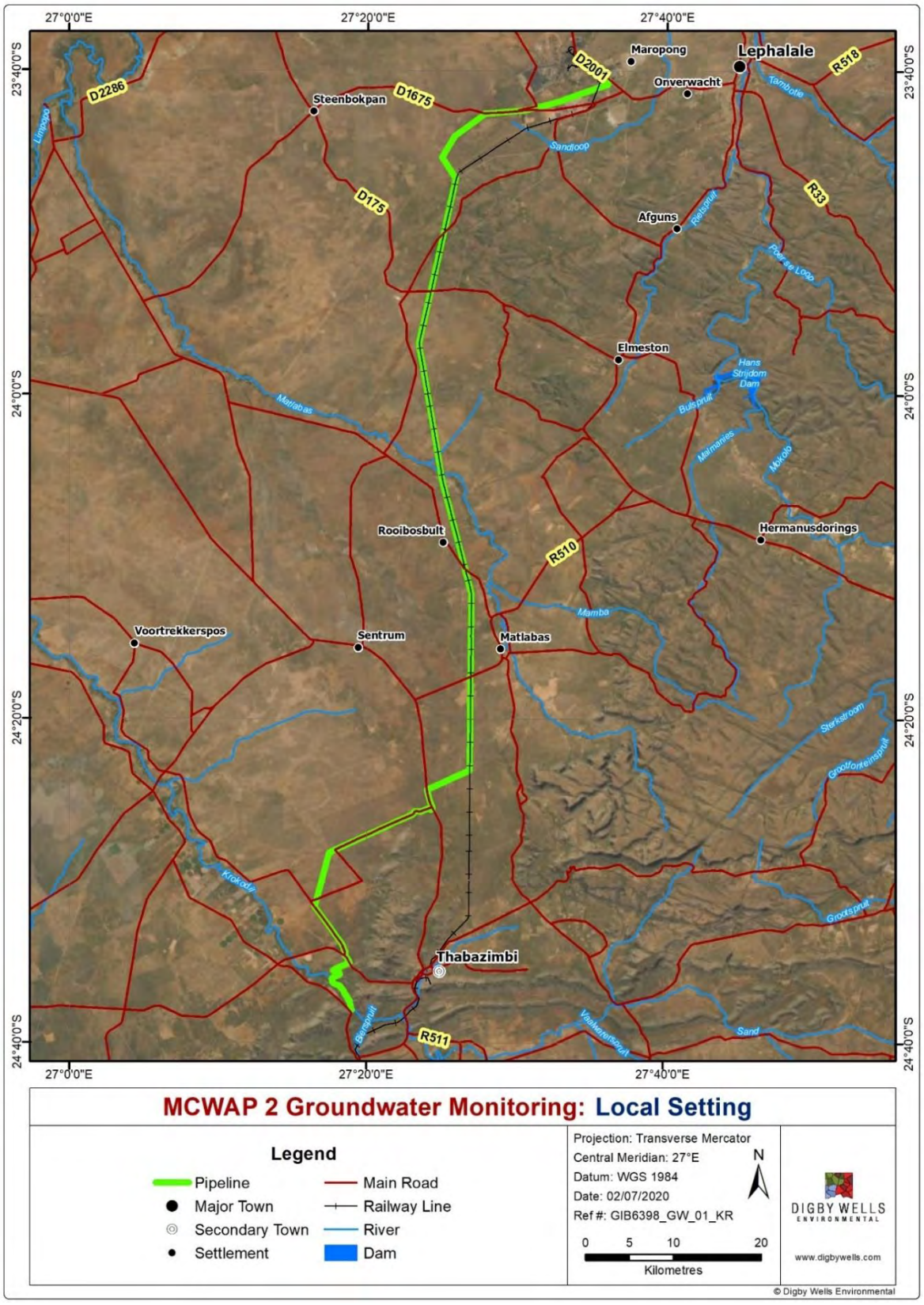

Figure 1: Project Locality

1.3. Terms of Reference

The terms of reference (ToR) for the Groundwater Quality Assessment include:

- Baseline monitoring and investigation of the statutes of the groundwater quality (Identify contaminants of concern and potential sources of pollution);
- Conduct a groundwater hydrocensus along the entire pipeline route;
- Document sampling and monitoring protocols;
- Appropriate chain of custody information;
- Quarterly groundwater quality and water level monitoring over a one (1) year period, with a total of:
  - Fifty (50) samples for the first quarter; and
  - Fifty-four (54) samples for the second, third and fourth quarters;
- Sampling, analysis and reporting on the data collected for the annual period and the development of trend analysis;
- The project will require drinking water in selected areas and therefore requires full SANS (241: 2015) analysis for ten (10) samples. The remaining forty-four (44) samples must be analysed for a shortened (reduced) SANS (241: 2015) analysis; and
- Manage the process of sample analysis to ensure reliable, accurate and legally defensible data.

To address the prescribed ToR, the following deliverables will be provided during the project:

- Baseline hydrogeological assessment:
  - Desktop review of previous assessments and identify variables of concern;
  - Identify potential source(s) of pollution and provide mitigations;
- Conduct a hydrocensus to identify additional boreholes that may be present on previously unvisited or inaccessible farm portions;
- Conduct quarterly groundwater monitoring (water level and quality) along the planned pipeline route for an annual period;
- Hydrogeological input into the draft Construction Environmental Management Programme Report (CEMPr); and
- Hydrogeological reporting and input towards the Water Use Licence Application (WULA) and borrow pit technical reports based on the hydrogeological data collected during the project.

1.4. Literature Review

The following documentation was provided for review:

- Memorandum:
  - Environmental and social conditions which might affect the feasibility and cost of the project components (Smit, 2020);
- Reports:
  - Construction Environmental Management Programme (GBN Joint Venture, 2020);
  - Environmental Impact Assessment Report (Nemai Consulting, 2018);
  - Specialist Groundwater Baseline Report (WSM Leshika, 2020);
  - MCWAP-2 Additional Geohydrological Survey (WSM Leshika, 2020);
  - Wetland Impact Assessment (Index (Pty) Ltd, 2018);
  - Hartbeespoort Dam Specialist Opinion (Horizon Environmental Consulting (Pty) Ltd, 2018);
  - Aquatic Baseline and Impact Assessment (The Biodiversity Company, 2018);
- Authorisations:
  - Environmental Authorisation (Department of Environmental Affairs, 2019);
- KMLs:
  - 2020-05-12 MCWAP-2 Version 26;
- PDF Diagrams:
  - MCWAP-2 Gravity Main Layout Plans (54 Sheets);
  - MCWAP-2 High Lift Rising Main Layout Plans (16 Sheets); and
  - MCWAP-2 Low Lift Rising Main Layout Plans (3 Sheets).

2. Assumptions and Limitations

The following assumptions and limitations are applicable to the baseline assessment:

- The hydrogeological baseline is a collation of the available information from previous assessments;
- The hydrogeological baseline will be updated at the end of the fourth quarterly survey to include the annual results of the groundwater monitoring programme; and
- It is assumed that all third-party reports and information utilised in the compilation of the hydrogeological baseline assessment is correct.

3. Hydrogeological Baseline

The hydrogeological baseline descriptions are summarised from the literature review reports.

3.1. Climate

Thabazimbi and Lephalale are characterised by semi-arid climates with warm summers and cold to mild winters. Climate data was obtained from the South African Weather Service for the Thabazimbi and Lephalale Stations (Nemai Consulting, 2018). Temperatures vary between a minimum of 3°C and a maximum of 33°C in Thabazimbi and between a minimum of 6°C and a maximum of 34°C in Lephalale (Figure 2).

The average rainfall for Thabazimbi (279 mm) and Lephalale (419 mm) occur predominantly through summer rainfall events.

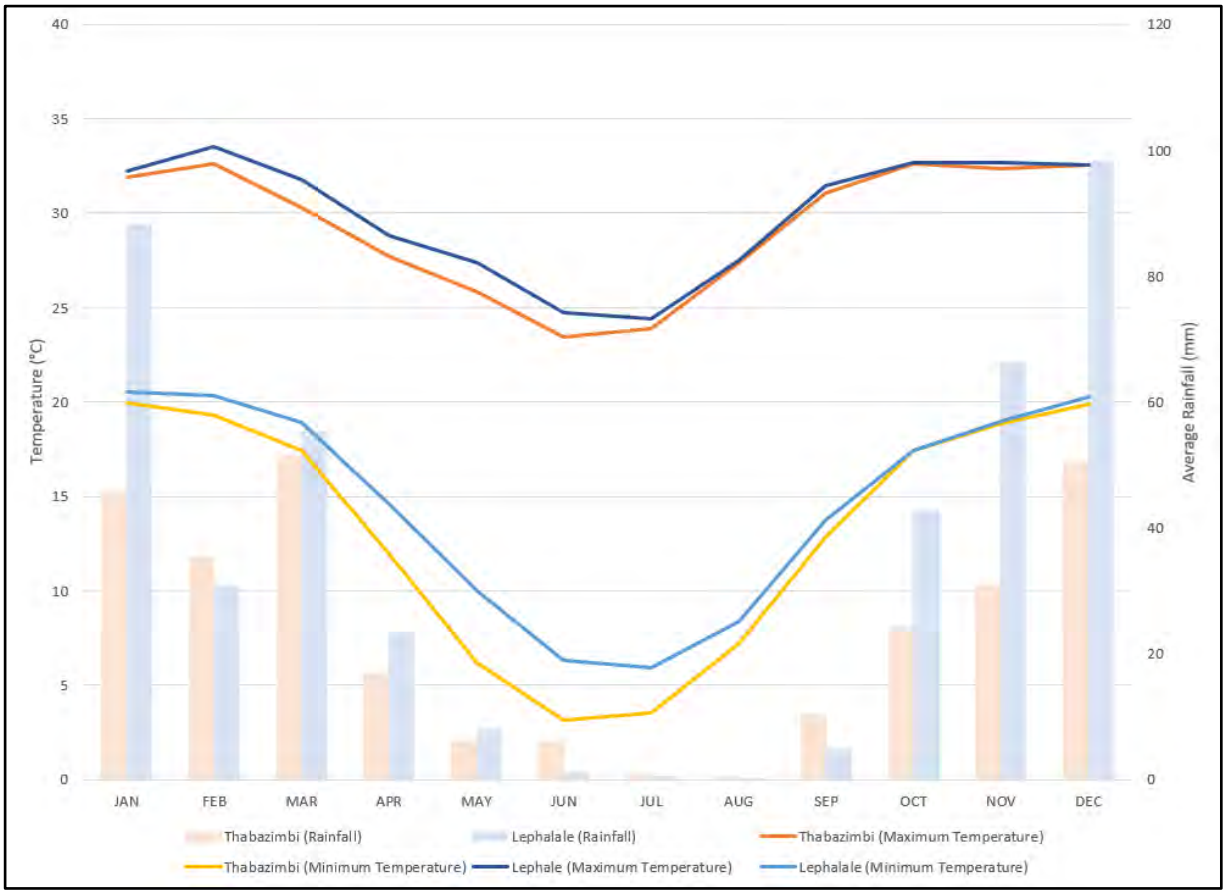

Figure 2: Climate Graph for Thabazimbi and Lephalale

3.2. Topography and Drainage

The topography of the MCWAP-2 pipeline comprises low mountains (near Thabazimbi) and flat undulating plains underlying most of the pipeline route (Figure 3). The abstraction weir at Vlieëpoort (near Thabazimbi) is located in a narrow valley in the Vlieëpoort mountains which have an elevation high of 1400 mamsl (mountains) and an elevation low of less than 900 mamsl (in the riverbed). The elevation of Lephalale is approximately 829 mamsl (WSM Leshika, 2020) (GBN Joint Venture, 2020) (Nemai Consulting, 2018).

The MCWAP-2 pipeline is located in the Limpopo Water Management Area (WMA1) and transects the quaternary catchments A24C, A24H, A24F, A24J and A41C. The drainage systems linked to these quaternary catchments include the perennial Crocodile River (West) and ephemeral Bierspruit, Sandspruit and Matlabas Rivers. These rivers drain the catchments in a northerly / north-westerly direction towards the Limpopo River. The river systems have been transformed by the construction of weirs which modify surface water flow and habitats along these systems (The Biodiversity Company, 2018).

The upstream catchment of the Crocodile River (West) comprises of extensive agricultural, industrial and urban land uses (draining water from Johannesburg (northern suburbs), Pretoria (Metropolitan region), Thabazimbi and Rustenburg. The industries directly associated with the MCWAP-2 weir location on the Crocodile River (West) include game, livestock and agricultural (irrigated) farming practises and iron-ore mining operations (The Biodiversity Company, 2018).

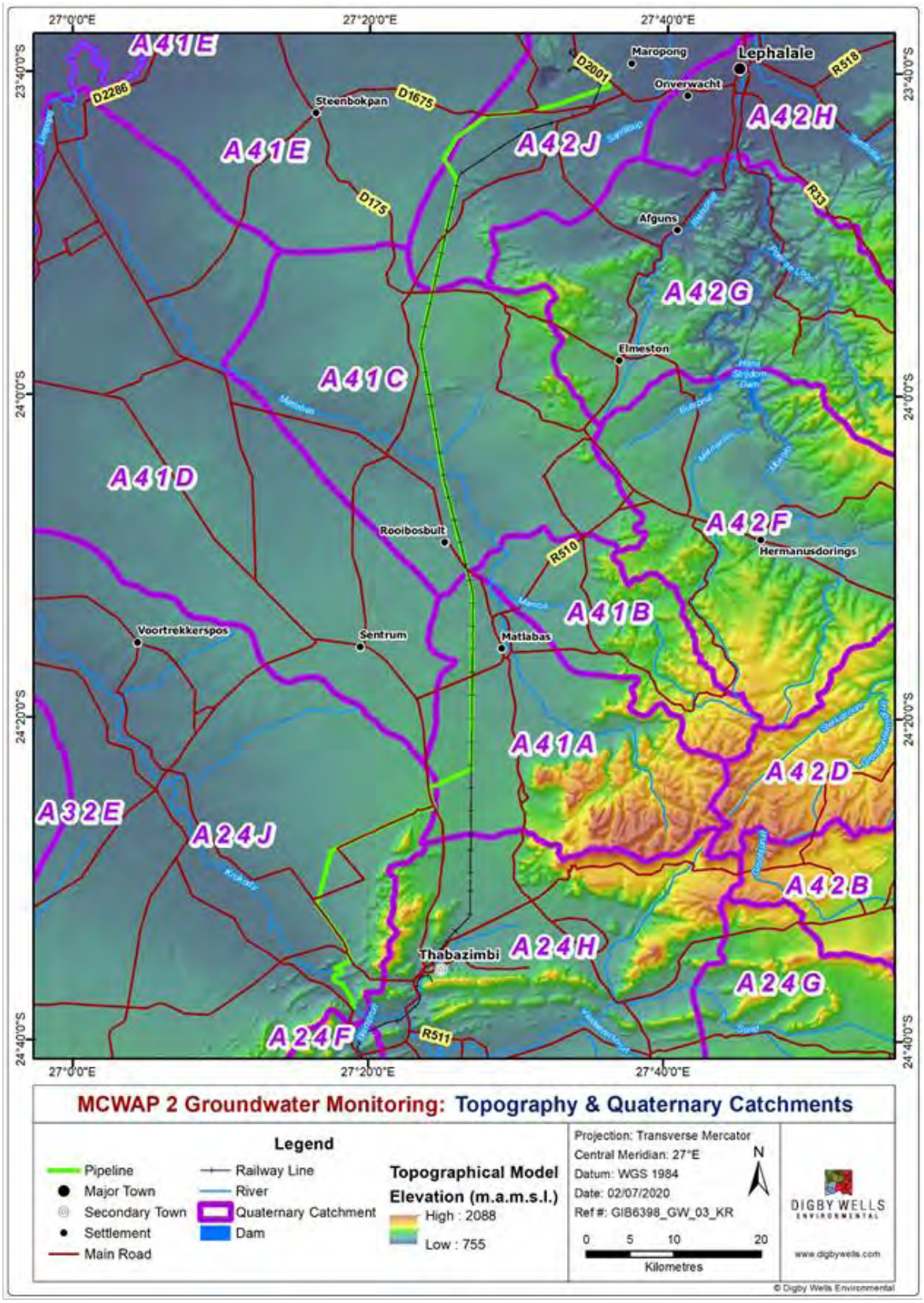

Figure 3: Topography and Quaternary Catchments

3.3. Geology

The large geographical extent of the MCWAP-2 pipeline crosses over multiple geological supergroups and formations (Figure 4) (GBN Joint Venture, 2020). The stratigraphy is provided in Table 1.

The southern portion of the MCWAP-2 pipeline crosses over the Chuniespoort Group (dolomite and iron-stone lithologies) and Pretoria Group (shale, quartzite and lava lithologies) of the Transvaal Supergroup, which comprises the oldest geological units. Quaternary sandy alluvial deposits are present along the banks of the Crocodile River. The iron-stone lithology as part of the Transvaal Supergroup is of economic importance. Structurally the Transvaal Supergroup units have a shallow (15° to 30°) dip towards the south-east as a result of the later intrusion of the Bushveld Complex. The Transvaal Supergroup is highly faulted (east-west striking) however the faults are typically limited in their extent. Underlying the Transvaal Supergroup are the volcanic rocks of the Ventersdorp Supergroup (GBN Joint Venture, 2020) (Nemai Consulting, 2018) (WSM Leshika, 2020).

The central portion of the MCWAP-2 pipeline crosses over the Waterberg Group which mainly comprises sandstone lithologies. The Waterberg Group formations have a slight northerly dip direction (in the south) which becomes almost horizontal in the north. The Waterberg Group has been extensively intruded by diabase dykes and sills of Molokian Age. Prominent north-east and north-west striking lineaments are attributed to the diabase dykes (GBN Joint Venture, 2020) (Nemai Consulting, 2018) (WSM Leshika, 2020).

The northern portion of the MCWAP-2 pipeline crosses over the youngest geological unit, the Karoo Supergroup, which comprises of sandstone, siltstone, shale, mudstone and coal lithologies. The Karoo Supergroup is unconformably overlain by Quaternary Sands. The coal lithologies of the Karoo Supergroup are of economic importance and is the driving force of development in the Lephalale Area. The Karoo Supergroup formations are sub-horizontal and extensively faulted. Faults have been mapped for significant distances. The Eenzaamheid Fault forms the southern boundary of the Waterberg Coalfield deposits. The MCWAP-2 pipeline is generally located south of this fault except for a small section near Medupi Power Station (GBN Joint Venture, 2020) (Nemai Consulting, 2018) (WSM Leshika, 2020).

Table 1: Stratigraphy

Supergroup	Suite / Group	Subgroup	Zone / Formation
Karoo Supergroup	Lebombo Group		Letaba Formation
			Clarens Formation
	Dwyka Group		
Pilanesberg Alkaline Province	Glenover Complex		
	Waterberg Group	Kransberg Subgroup	Vaalwater Formation
			Cleremont Formation
		Matlabas Subgroup	
		Nylstroom Subgroup	Alma Formation
			Swaershoek Formation
Bushveld Complex (Koringkoppies Complex is an intrusion event related to the Bushveld Complex)	Lebowa Granite Suite		
	Rashoop Granophyre Suite		
	Rustenburg Layered Suite (Western Limb)		Upper Zone
	Rooiberg Group		Schrikkloof Formation
Transvaal Supergroup	Pretoria Group		Silverton Formation
	Chuniespoort Group		Penge Formation
		Malmani Subgroup	
			Black Reef Formation
	Buffelsfontein Group		

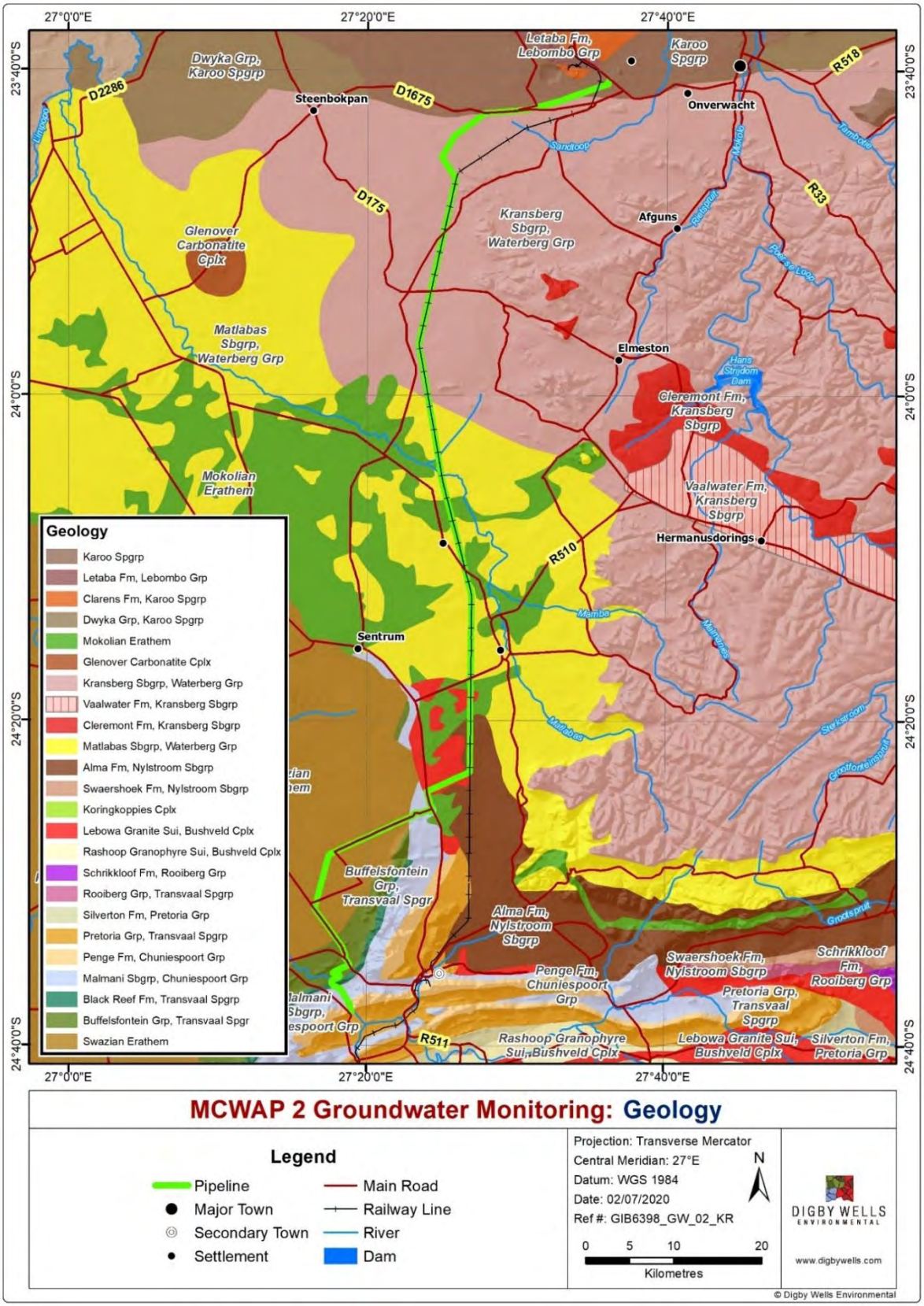

Figure 4: Regional Geology

3.4. Hydrogeology

3.4.1. Aquifers

3.4.1.1. Alluvial Aquifers

Alluvial (intergranular) aquifers are present along the perennial Crocodile River (West) and form an important water resource for irrigation in the surrounding areas. The alluvial aquifer provides significant storage and high permeabilities due to its variable composition of clay, silt, sand, calcrete, gravel and boulder river deposits. The thickness of the deposits varies, however, paleochannels can reach depths of approximately 40 m. The permeability of this aquifer has been indicated as between 10 m/d and 30 m/d, with an average transmissivity of 450 m^2/d. Aquifer testing undertaken on the Mooivalei farm measured transmissivities of between 5 000 m^2/d to 8 000 m^2/d[1] (WSM Leshika, 2020) (WSM Leshika, 2020).

Recharge to this aquifer occurs through infiltration of direct rainfall and upstream river flows. Groundwater levels in this aquifer are typically shallow. Groundwater levels, quality and isotope assessments undertaken by Aurecon (2013) concluded that there is a significant link between the surface water and groundwater qualities in this aquifer (WSM Leshika, 2020) (WSM Leshika, 2020).

Construction of the abstraction weir in the alluvial aquifer could potentially result in a disturbance to the groundwater (sub-surface) flow conditions. This aquifer is exposed to contamination by poor effluent and waste management controls and disposal by municipalities, by agricultural activities and by mining activities in the Crocodile River catchment. Nitrates (fertilisers and sewage) and acid mine drainage (AMD) are the main contaminants and risks to the water quality in this aquifer (WSM Leshika, 2020) (WSM Leshika, 2020).

3.4.1.2. Dolomitic Aquifers

Dolomites are important aquifer types for South Africa, due to their ability to store large volumes of groundwater which is generally of good water quality. Karstic features can develop within the dolomites where historical and/or current hydrogeological conditions settings are favourable for their development. Dolomites comprise of carbonate minerals which have the potential to dissolve along discontinuities, fractures and faults resulting in the potential formation of cavities. The unique interconnectedness of these karstic features increases the secondary permeability of the dolomites (which of themselves have relatively low primary permeabilities) to provide significant groundwater yields (WSM Leshika, 2020) (WSM Leshika, 2020).

[1] The aquifer tested boreholes which had the higher transmissivities, intersected a slightly thicker gravel unit which was interpreted to have a higher permeability. The late transmissivity results for these boreholes reduced to approximately 3 780 m^2/d suggesting that the gravel aquifer is of limited extent (WSM Leshika, 2020).

Although the dissolution of carbonate minerals results in higher groundwater yields for this aquifer, it additionally makes this aquifer susceptible to contamination (which can exacerbate the formation of karstic features). Uncontrolled abstraction from these compartments (which results in these compartments being dewatered) can impact the structural integrity of the karstic feature, resulting in the development of subsidence or sinkholes.

No significant karstification was noted by WSM Leshika for the dolomite, which was shown to have an approximate transmissivity of 4 m^2/d (WSM Leshika, 2020) (WSM Leshika, 2020).

3.4.1.3. Karoo Supergroup and Waterberg Group Aquifers

The Karoo Supergroup and Waterberg Group lithologies typically have an upper weathered aquifer which overlies a deeper fractured aquifer system. Recharge to the weathered aquifer in the Waterberg Coalfield is approximately 0.7% of the mean annual rainfall. Groundwater flow in this aquifer is predominantly along fracture and fault structures, which provide preferred pathways for groundwater movement. Groundwater yields in this aquifer are generally low.

3.4.2. WSM Leshika Groundwater Flow Directions

Groundwater levels measured as part of the hydrocensus undertaken by WSM Leshika vary between artesian (0 mbgl) to 81 mbgl (affected by abstraction), with an average of 28 mbgl (WSM Leshika, 2020) (WSM Leshika, 2020).

Groundwater levels indicate a good correlation of 89% with surface topography (Figure 5). This indicates that groundwater flow will follow surface topography, flowing from areas of high elevation to areas of lower elevation (typically represented by river and wetland systems).

Based on the topography for the MCWAP-2 pipeline, groundwater will flow from the highlands in the east towards the Limpopo River to the west and north of the pipeline. Local variations to the groundwater flow will be towards the Crocodile, Matlabas and Sandloop Rivers where groundwater has not been affected by abstraction.

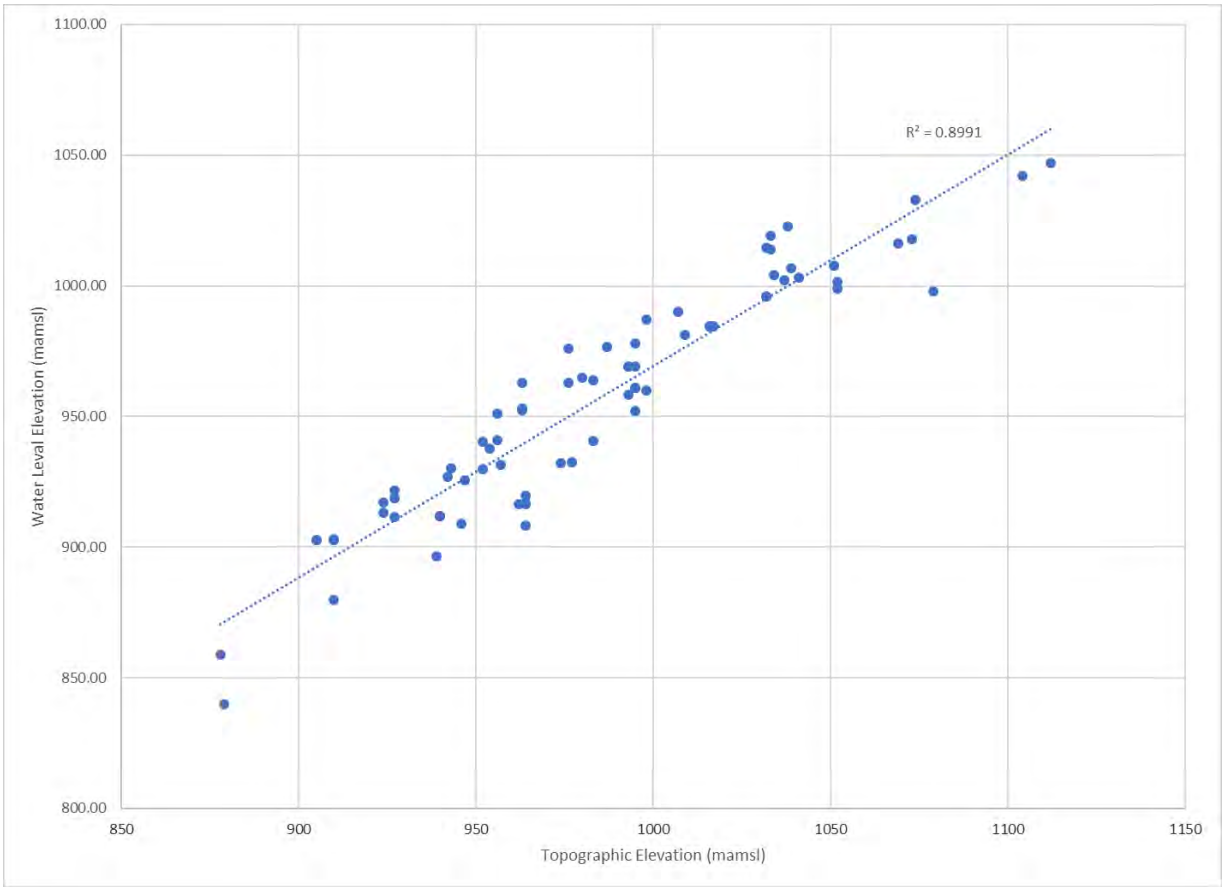

Figure 5: Groundwater Correlation Graph

WSM Leshika has noted that abstraction for irrigation purposes near the Crocodile River (West) has resulted in a reversal of groundwater flow, where groundwater from the alluvial aquifer and surface water from the Crocodile River (West) is being drawn towards the dolomitic aquifer (WSM Leshika, 2020).

3.4.3. WSM Leshika Hydrochemistry Results

WSM Leshika undertook water quality sampling only for boreholes located on the Mooivalei farm (associated with the weir location). The Piper Diagram for the water samples is provided as Figure 6. Two distinctive groups are present on the diamond plot of the Piper Diagram, both of which indicate a magnesium-bicarbonate water type. The two groups are differentiated by the chloride anion which is slightly more present in the borehole samples taken from the irrigated fields (WSM Leshika, 2020).

Water qualities are marginal (Class II) to poor (Class III) based on Water Affairs Domestic Water Quality classification. The marginal and poor water qualities are defined by the total hardness concentrations which has been attributed to the dolomitic aquifer. Two boreholes also fall within the Class III limits for nitrate which has been identified as a contaminant from agricultural (fertilisers) or municipal (sewage) activities (WSM Leshika, 2020).

Water qualities for the remainder of the pipeline route will be assessed over four quarterly monitoring runs, commencing in July 2020.

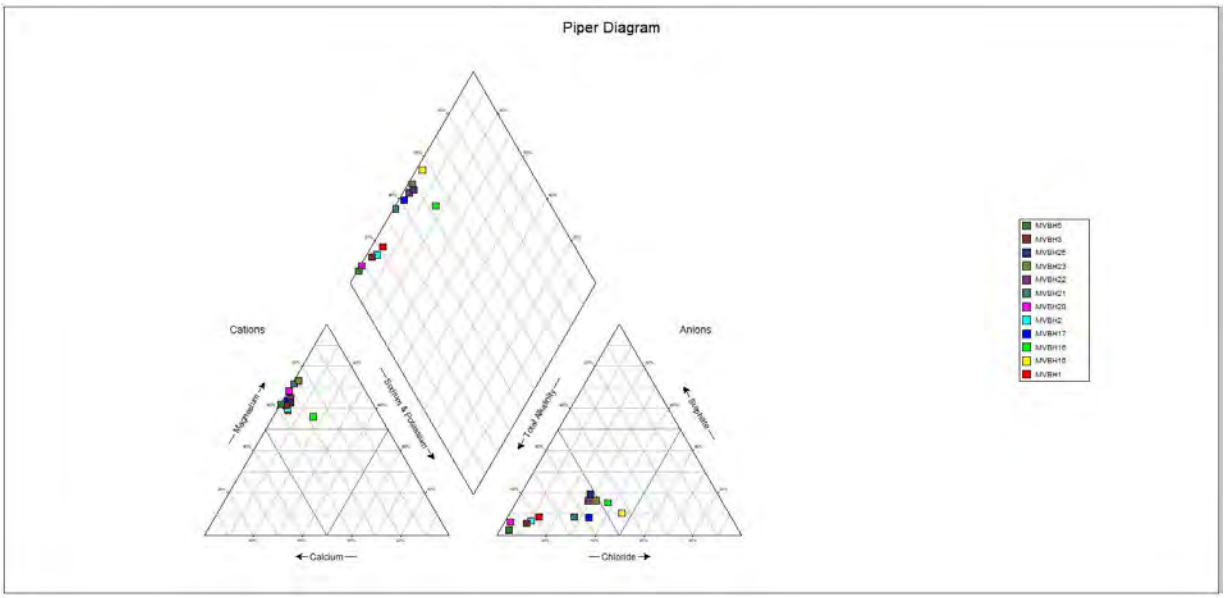

Figure 6: Piper Diagram

3.5. Impact Sources

The following impacts could result in groundwater contamination or depletion of the groundwater aquifer:

- Groundwater Contamination:
  - Hydrocarbon / hazardous material / effluent spills in the servitude, excavation and borrow pit working areas;
  - Poor waste management and storage resulting in seepage of contaminants to the groundwater aquifer;
  - Poor construction of the MCWAP-2 pipeline and associated infrastructure resulting in leaking of transfer water to the groundwater aquifer;
  - Removal of soils and topsoil leaving the underlying aquifers vulnerable to potential surface contamination;
  - Disturbances to the aquifers from small-scale blasting resulting in fractures which could establish links between good quality aquifer systems to poorer quality aquifer systems;
  - Disturbance to the aquifer from small-scale blasting resulting in fractures and preferential pathways in the dolomite aquifer for dissolution cavity development;
  - Exposing fresh dolomite to conditions which may promote karstic weathering;
  - Using contaminated material as construction or rehabilitation material;

- Groundwater Depletion:
  - Abstracting groundwater from water supply boreholes at unsustainable yields;
  - Excavating below the water table creating a groundwater sink towards the borrow pits, potentially impacting on neighbouring third-party boreholes supplies; and
  - Capturing water in the abstraction weir, increasing the groundwater levels upstream of the weir and reducing river flows and therefore recharge potential to the alluvial aquifers downstream of the weir.

3.6. CEMPr Mitigation Measures

The following mitigation measures are recommended in the Construction Environmental Management Programme Report (CEMPr) which are applicable to the hydrogeological environment:

- Authorisations:
  - Apply for an Integrated Water Use Licence (IWUL);
- Groundwater Management:
  - Provide environmental awareness training for construction water management and water saving practices to be implemented (i.e., to limit abstraction requirements for domestic purposes at the construction camps during the construction phase);
  - Boreholes selected for water supply need to be aquifer tested for a sustainable yield, to which abstraction rates must comply;
  - Groundwater levels from abstraction boreholes must be monitored on a monthly basis to ensure water levels do not drop below the pump equipment;
  - Monitor water supply sources for inorganic and microbiological quality and implement treatment options (if required);
  - Investigate claims or complaints from surrounding groundwater users and implement any corrective measures recommended as an outcome of the investigation;
  - Notify surrounding groundwater users of contamination / hydrocarbon spills where water supply boreholes are at risk of being contaminated;
- Groundwater Impacts:
  - Ensure spill kits are available to manage any hydrocarbon spills during site establishment until dedicated vehicle maintenance areas are defined. Spill kits must remain available during the construction progress;
  - Transport and store hazardous material according to their specific Material Safety Data Sheets (MSDS), protect from direct rainfall and prevent run-off from these areas;

- Storage facilities for hazardous material must be bunded with impermeable surfaces. The bund must have a net capacity equal to that of the storage tank plus an additional 10% of the tank capacity (SANS 10131: 2004);
- Prevent hydrocarbon spills within the project servitude, excavations and borrow pits by maintaining vehicles and the use of dip trays. Leaking equipment must be repaired immediately or removed from site;
- Any hydrocarbon spills need to be cleaned up immediately and the contaminated material disposed of at an appropriate licenced facility;
- Report spills timeously according to the procedures;
- If there is a significant hydrocarbon spill, boreholes within 100 m radius must be sampled immediately for the full range of organic parameters. Sampling of organic parameters must continue a monthly basis thereafter until the results are undetectable. If organic parameters remain undetectable after the spill, sampling must continue for a year to confirm no negative impacts were caused to the borehole. If a complaint or issue is raised thereafter sampling for organic parameters will need to resume until the results are undetectable and investigate if hydrocarbon spill was adequately rehabilitated;
- Locate infrastructure in areas where sensitive environmental features will not be impacted on (i.e., not within 100 m of a water body), unless authorisation to do so has been granted;
- Locate all storage and laydown areas within predetermined footprints as per the approved site plan;
- Manage storm water from any construction camps to limit seepage of contaminated water from dirty water areas (i.e., from workshop and fuel storage areas) to aquifers;
- Storm water runoff from workshops, vehicle maintenance area, wash-bay and other potential pollution sources shall be collected and treated in hydrocarbon separation pits / tanks before discharge to drains and waterways;
- Wastewater discharge locations must comply to the IWUL;
- Wastewater discharges must be included in the water monitoring network;
- No pit latrines, French drain or soak away systems are allowed. Install and maintain conservancy tanks (where required) as per the site plan;
- Toilets must not be positioned within 100 m of a water body or water supply borehole nor within the 1:100-year floodline, whichever has the greater distance;
- All toilets must be serviced regularly by a waste management service provider (contractor) to prevent spillages and overflows;
- The waste management service provider (contractor) must ensure that no spillages occur when the toilets are serviced (cleaned and emptied) and that waste is

transported in an appropriate manner until disposed at a waste disposal or treatment facility designed to handle the waste;

- The waste management service provider (contractor) must ensure that no waste is buried, dumped or burnt;
- Portable (temporary / mobile) toilets must be secured to prevent them falling over;
- Discharge water from showers and washing facilities must be managed to prevent seepage to the groundwater aquifers;
- Construction activities must remain within the designated servitudes to minimise disturbance of overburden and aquifers;
- Borrow pits and excavations must be rehabilitated according to the rehabilitation plan;
- Keep the disturbance footprint to within the designed infrastructure specifications in areas underlain by the sensitive dolomitic and alluvial aquifers;
- Avoid the establishment of workshops and maintenance facilities on the sensitive dolomitic and alluvial aquifers, unless authorisation to do so has been granted;

- Monitoring:
  - The development of a pre-construction groundwater (quality and level) monitoring database is in progress for the pipeline route, to serve as a reference point for comparison during the construction phase of the project;
  - Continue quarterly monitoring of strategic groundwater boreholes to assess impacts of the pipeline construction to the groundwater aquifers;
  - Install a digital rain gauge at the weir site to correlate rainfall events with groundwater level fluctuations;
  - Keep record of dam volume releases upstream of the weir to correlate with groundwater level fluctuations. This will provide feedback on the recharge potential to the alluvial aquifer, which can be included in numerical model updates to refine the impacts relating to abstraction from the MCWAP-2 weir;
  - Investigate any increases in analyte concentrations and decreases in water levels in groundwater monitoring results (from the baseline conditions), which are not representative of seasonal changes, and implement corrective measures recommended as an outcome of the investigation; and
  - Monitor groundwater levels and quality in boreholes surrounding the development on a monthly basis during construction.

4. Quarterly Results

The third quarterly sampling event took place over three field surveys between 11th of January and the 26th of February 2021:

- The first field survey was undertaken between the 11th and 15th of January 2021;

- The second field survey was undertaken on the 22nd of January 2021 to collect samples from boreholes which could not be sampled in the first survey due to weather; and
- The third field survey was undertaken on the 25th and 26th February 2021 to collect samples which could not be sampled in the first two surveys because of weather and access limitations.

The weekly environmental reports for the three weeks spent in the field are attached as Annexure A.

4.1. Methodology

Sterilised sampling bottles were obtained from WaterLab, which is accredited by the South African National Accreditation System (SANAS). Groundwater samples were collected in and around the project area; either by pumping water from the installed borehole pumps or with an open-end bailer, depending on the conditions found suitable at each borehole.

Samples were preserved in a cooler box(s) with ice packs (whilst in the field) and stored in fridges (at the accommodation locations during the fieldwork) until submission to WaterLab upon returning to Johannesburg. The sample bottles and containers were marked with the borehole name, date and time of sampling. Samples which required analysis of microbial parameters were submitted to the lab for analysis within 24 hours by courier. Field measurements for pH, electrical conductivity, total dissolved solids and water levels were recorded with calibrated instruments. Field instruments are calibrated every day using standard solutions (Annexure F).

The samples were transported to WaterLab in Pretoria for analysis. Ten samples were analysed for the full SANS (241: 2015) range of parameters and forty-four samples were analysed for a reduced SANS (241: 2015) range of parameters. The SANS (241: 2015) drinking water specifications provide the minimum requirements for potable water to be considered safe for human consumption. The parameters analysed for the full range and reduced range of SANS (241: 2015) water quality analyses are provided in Table 2 and Table 3. The water quality results are compared against the SANS 241: 2015 drinking water limits in the tables appended to Annexure C. The laboratory certificates are provided in Annexure E.

The results were then captured in the Windows Interpretation System for Hydrogeologists (WISH) software. WISH is a database management software package with GIS and data interpretation tools which works with an excel database structure.

Table 2: Full Range of SANS (241: 2015) Water Quality Parameters

pH (Value at 25°C)	Sulphate as SO_4 (mg/l)	Chloroform as $CHCl_3$ (ug/l)	Sodium as Na (mg/l)	Total Chromium as Cr (ug/l)
Electrical Conductivity (mS/m at 25°C)	Fluoride as F (mg/l)	Bromoform as $CHBr_3$ (ug/l)	Potassium as K (mg/l)	Copper as Cu (ug/l)
Total Dissolved Solids (mg/l at 180°C)	Nitrate as N (mg/l)	Dibromochloromethane as $CHBr_2Cl$ (ug/l)	Calcium as Ca (mg/l)	Iron as Fe (ug/l)
Colour (PtCo Units)	Nitrite as N (mg/l)	Bromodichloromethane as $CHBrCl_2$ (ug/l)	Magnesium as Mg (mg/l)	Lead as Pb (ug/l)
Turbidity (N.T.U)	Combined Nitrate & Nitrite (mg/l)	Combined Trihalomethanes (mg/l)	Aluminium as Al (ug/l)	Manganese as Mn (ug/l)
Free Residual Chlorine as Cl_2 (mg/l)	Silica as SiO_2 (Mg/l)	Total Coliform Bacteria (count / 100 ml)	Antimony as Sb (ug/l)	Mercury as Hg (ug/l)
Monochloramine (mg/l)	Total Organic Carbon as C (mg/l)	E. coli (count / 100 ml)	Arsenic as As (ug/l)	Nickel as Ni (ug/l)
Total Alkalinity as $CaCO_3$ (mg $CaCO_3$/l)	Free Cyanide as CN (ug/l)	Heterotrophic Plate Count (count / 1 ml)	Barium as Ba (ug/l)	Selenium as Se (ug/l)
Langelier Index (at 25°C)	Phenols (ug/l)	Somatic Coliphages (count / 10 ml)	Boron as B (ug/l)	Uranium as U (ug/l)
Chloride as Cl (mg/l)	Microcystin as LR (ug/l)	Free and Saline Ammonia as N (mg/l)	Cadmium as Cd (ug/l)	Zinc as Zn (mg/l)

Table 3: Reduced Range of SANS (241: 2015) Water Quality Parameters

pH (Value at 25°C)	Total Organic Carbon as C (mg/l)	Boron as B (ug/l)
Electrical Conductivity (mS/m at 25°C)	Oil & Grease (mg/l)	Cadmium as Cd (ug/l)
Total Dissolved Solids (mg/l at 180°C)	Free and Saline Ammonia as N (mg/l)	Total Chromium as Cr (ug/l)
Colour (PtCo Units)	Sodium as Na (mg/l)	Copper as Cu (ug/l)
Turbidity (N.T.U)	Potassium as K (mg/l)	Lead as Pb (ug/l)
Total Alkalinity as $CaCO_3$ (mg $CaCO_3$/l)	Calcium as Ca (mg/l)	Manganese as Mn (ug/l)
Langelier Index (at 25°C)	Magnesium as Mg (mg/l)	Mercury as Hg (ug/l)
Chloride as Cl (mg/l)	Aluminium as Al (ug/l)	Nickel as Ni (ug/l)
Sulphate as SO_4 (mg/l)	Antimony as Sb (ug/l)	Selenium as Se (ug/l)
Fluoride as F (mg/l)	Arsenic as As (ug/l)	Uranium as U (ug/l)
Silica as SiO_2 (mg/l)	Barium as Ba (ug/l)	Zinc as Zn (mg/l)

4.1.1. Description of Monitoring Sites

WSM Leshika identified one-hundred and fifty-nine (159) boreholes during their June 2019 hydrocensus, of which a selection of fifty (50) boreholes were identified and prioritised based on the following criteria for the first quarterly field survey:

- Boreholes identified as being used for domestic purposes (household / lodge / hunting camp) within a 1 km buffer of the pipeline were identified for Full SANS (241: 2015) analysis. Properties with multiple boreholes in this category were restricted to one (1) sample for the Full SANS (241: 2015) analysis to allow for a distribution of ten (10) Full SANS (241: 2015) samples along the length of the pipeline route;
- A selection of forty (40) boreholes were selected from the remaining boreholes, within a 1 km buffer of the pipeline route:
  - Boreholes indicated as blocked were removed from the selection list;
  - An initial selection was based on one (1) borehole per farm, considering the proximity of the borehole to the pipeline (within the 1 km buffer) and the location of boreholes on neighbouring farms so there is a selection of upgradient and downgradient boreholes;
  - Based on the above criteria twenty-one (21) boreholes were identified;
  - A second selection of nineteen (19) boreholes was made to supplement the boreholes already selected resulting in two (2) or three (3) boreholes being identified per farm. These could be swopped out with any new boreholes (identified on the farms which were previously not surveyed by WSM Leshika but were able to be accessed during the first quarterly field survey) should the new boreholes provide better coverage; and
  - The final 50 monitoring boreholes are provided in Table 4 and displayed in Figure 7 which will remain consistent for the remaining quarterly sampling surveys unless circumstances beyond control prevents this.

Eleven (11) boreholes were identified during the hydrocensus survey undertaken during the first quarterly field survey.

Seven (7) boreholes were identified during the hydrocensus survey undertaken during the second quarterly field survey on the Buffelsvley and Stratford properties. Of the seven (7) boreholes four (4) boreholes were selected for inclusion into the groundwater monitoring network (Table 6). These boreholes are located on Buffelsvley 127 KQ and Stratford 462 KQ which were previously inaccessible due to the landowners filing an appeal for the MCWAP-2 pipeline. The appeal has been overruled and the appellant landowners have subsequently allowed access.

Taking into account the above, the total number of boreholes identified for the MCWAP-2 project is one-hundred and seventy-seven (177). The locations of the one-hundred and seventy-seven (177) boreholes are provided in Annexure B.

Table 4: Monitoring Borehole Details

Borehole ID	Latitude	Longitude	Laboratory Analysis (SANS 241: 2015)
DKBH1	-24.4023	27.42291	Full Range
HKBH4	-23.7072	27.45062	Full Range
HLBH1	-23.6854	27.60393	Full Range
HOBH1B	-24.1754	27.43754	Full Range
HOBH1C	-24.1766	27.44882	Full Range
MVBH17	-24.5922	27.29684	Full Range
PABH3	-24.4816	27.27153	Full Range
RBH1A	-23.8727	27.39197	Full Range
RVBH4	-24.303	27.45397	Full Range
WVBH1B	-24.0845	27.41269	Full Range
BPBH1	-24.3657	27.46566	Reduced Range
DKBH2	-24.4106	27.42045	Reduced Range
DKBH4	-24.3895	27.44666	Reduced Range
DPBH1	-24.6332	27.3167	Reduced Range
GLBH1	-23.9979	27.38921	Reduced Range
HBH1	-24.6339	27.31468	Reduced Range
HOBH1A	-24.1929	27.45744	Reduced Range
IMBH1	-24.0298	27.41408	Reduced Range
LBBH3	-24.4411	27.37655	Reduced Range
MBBH3	-24.5277	27.29381	Reduced Range
MBH09	-23.7037	27.53678	Reduced Range
MLBH1	-24.2303	27.45408	Reduced Range
MSBH2	-23.9784	27.4114	Reduced Range
MTLBH1	-24.2088	27.4354	Reduced Range
MVBH2	-24.6259	27.31203	Reduced Range
MVBH5	-24.6175	27.30994	Reduced Range
MVBH31	-24.6077	27.2983	Reduced Range
MVBH32	-24.6122	27.2999	Reduced Range
NPBH10	-23.8553	27.41278	Reduced Range

Borehole ID	Latitude	Longitude	Laboratory Analysis (SANS 241: 2015)
NPBH9	-23.872	27.40757	Reduced Range
PEBH1	-23.7233	27.42868	Reduced Range
PEBH2	-23.70607	27.412493	Reduced Range
RBH2	-23.8969	27.40076	Reduced Range
RFBH4	-24.0529	27.40588	Reduced Range
RFBH6	-24.0436	27.40075	Reduced Range
RPBH1	-23.8344	27.4142	Reduced Range
RPBH2	-23.8315	27.41859	Reduced Range
RPBH3	-23.8204	27.43211	Reduced Range
WBR50	-23.6991	27.53919	Reduced Range
WKBH1	-24.28	27.44246	Reduced Range
WKBH3	-24.2799	27.44692	Reduced Range
WVBH1	-24.1533	27.42197	Reduced Range
WVBH1C	-24.0965	27.41369	Reduced Range
WVBH2	-24.0967	27.4211	Reduced Range
WVBH2A	-24.1126	27.41487	Reduced Range
ZFBH1	-23.932	27.37727	Reduced Range
ZFBH3	-23.9227	27.39542	Reduced Range
ZNBH1	-23.769	27.41399	Reduced Range
ZNBH3	-23.7708	27.41448	Reduced Range
ZSBH3	-24.4277	27.39718	Reduced Range

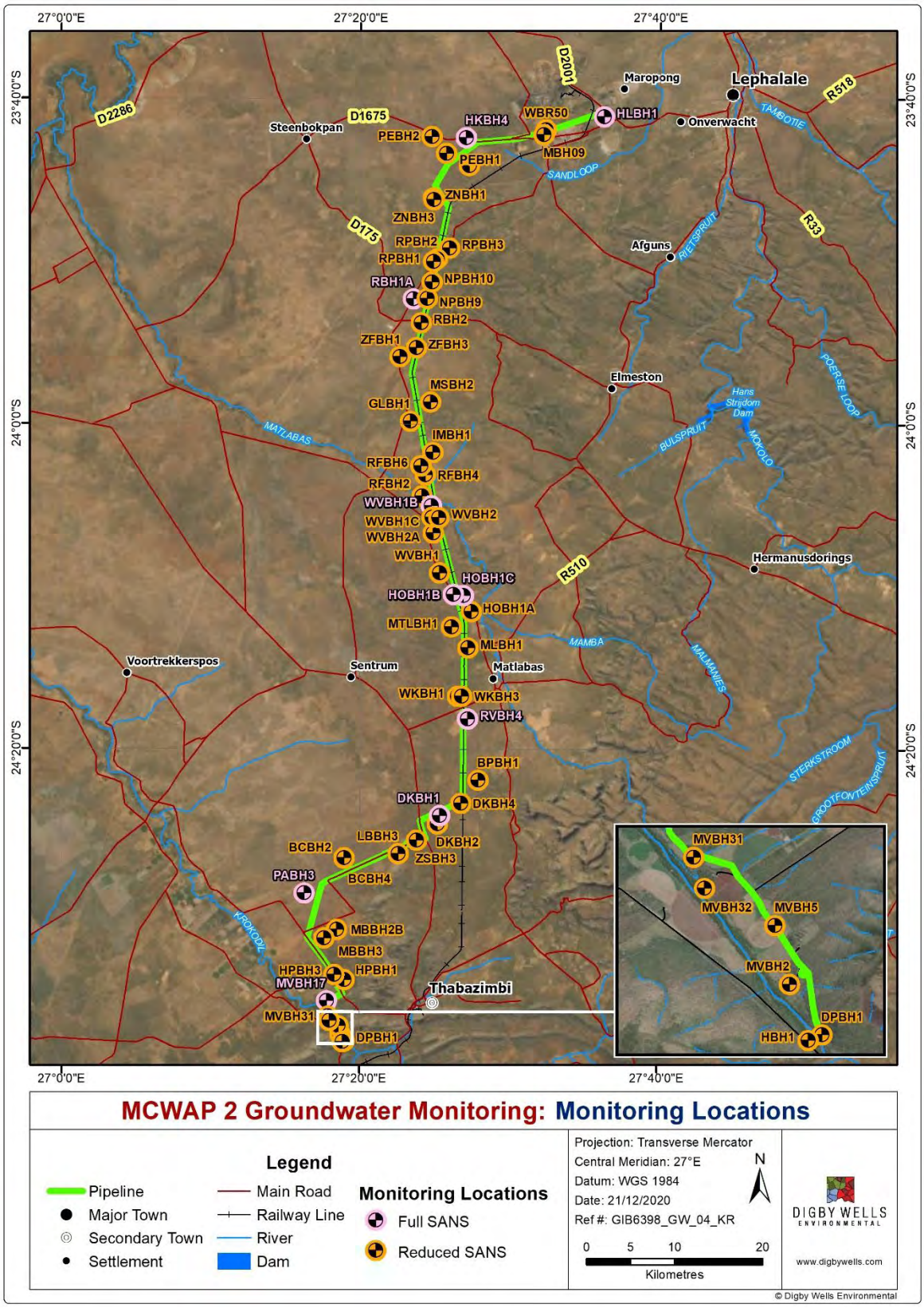

Figure 7: Borehole Locations

4.1.2. Study Limitations

The following limitations are applicable to the first quarterly monitoring survey:

- The Full SANS 241 (2015) samples were submitted to WaterLab at the end of the weekly site visit. The microbial analysis was therefore not submitted within the 24-hour holding time for the first quarterly results; and
- A laboratory error occurred that resulted in the exclusion of nitrate and nitrite from analysis for majority of the water samples in the first quarterly survey. The exclusion of nitrates and nitrites was only noticed when asked to confirm the analysis parameters for the second quarterly survey. A request was made to the laboratory to confirm if the analysis was completed but not reported on, to which it was confirmed that the nitrate and nitrite analysis was not completed for 34 samples.

The following limitations are applicable to the second quarterly monitoring survey:

- The drinking water quality is determined according to Water Research Commission, (WRC, 2001). The WRC guidelines are based on average and maximum values. Outliers and anomalous results in the database can introduce misrepresentations to the current water quality state by skewing the average and inflating the maximum concentration. It is recommended that the outliers and anomalous results be eliminated after all four quarterly sampling rounds have been completed to develop a representative baseline for the monitoring boreholes upon which the water quality WRC classification can be reassessed. The WRC average assessment will be completed as part of the interpretations in the final report;
- Borehole DPBH1 (on Donkerpoort 344 KQ) was destroyed as a result of agricultural activities prior to the second quarterly survey and is no longer accessible to sample for the groundwater monitoring network (water levels can still be measured at DPBH1). There were no other boreholes identified on the Donkerpoort 344 KQ property with which to replace this borehole and the neighbouring farms are adequately covered by the MVBH (Mooivalei Farms) and HBH (Hanover 667 KQ) monitoring boreholes. RFBH2 (on the remaining extent of Rietfontein 15 KQ) was selected to replace the DPBH1 borehole for the remaining three (3) quarterly surveys (Table 5);
- Borehole MBBH3 could not be sampled in the second quarterly survey as the landowner is in the process of equipping this borehole with a solar powered pump. The borehole could not be sampled with a bailer as the pump fittings limited space within the borehole and the electrics were not yet connected to power the pump. It is likely that MBBH3 can be sampled again in the third and fourth quarter, however MBBH2B was sampled as a backup during the second quarterly survey (Table 5);
- The borehole co-ordinates for PEBH2 were corrected in the second quarter to -23.706076 and 27.412493;

- HOBH1A was not sampled in October 2020 as part of the second quarterly survey. Site access was granted for the 13th November 2020, the sample was collected, and the results are included in this revision of the report; and
- Four (4) additional boreholes have been included as part of the groundwater monitoring programme (Table 6). The boreholes were located on farms which were appealing the MCWAP-2 pipeline. The appeal has been overruled and the appellant landowners have subsequently allowed access to sample from boreholes within their properties going forward. Samples were collected and water levels were measured on the 9th December 2020.

Table 5: Replacement Borehole Details

Borehole ID	Latitude	Longitude	Laboratory Analysis (SANS 241: 2015)	Comment
RFBH2	-24.0744	27.4021	Reduced Range	Replacement borehole for DPBH1
MBBH2B	-24.5188	27.3081	Reduced Range	Temporary backup for MBBH3

Table 6: Additional Borehole Details

Borehole ID	Latitude	Longitude	Laboratory Analysis (SANS 241: 2015)
BCBH2	-24.44594	27.31613	Reduced Range
BCBH4	-24.44578	27.31596	Reduced Range
HPBH1	-24.5706	27.31666	Reduced Range
HPBH3	-24.56509	27.30531	Reduced Range

The following limitations are applicable to the third quarterly monitoring survey:

- The outlet from which the water sample is collected for PEBH01 was flooded during the January and February field surveys which prevented this borehole from being sampled. Digby Wells will continue to confirm access during March 2021; and
- During the second quarterly survey a change of approximately 10 m was shown in the groundwater level measurements for WKBH3. This borehole is not equipped so the change was attributed to an error in the groundwater level measurement. The third quarter groundwater level was consistent with second quarterly survey of 51 mbgl. The first quarter measurement was corrected to 51.22 mbgl instead of the recorded 41.22 mbgl.

4.2. Third Quarterly Results

4.2.1. Water Levels and Groundwater Flow

Water levels were measured in twenty-six (26) boreholes (Figure 9) during the third quarterly site visit (Table 7). A static water level can only be measured where possible when abstraction is not taking place from a borehole.

The water levels ranged between 0 mbgl (artesian borehole) and 51 mbgl, with an average of 21 mbgl (Table 7). The third quarterly water levels have an 83% correlation (Figure 8) with the topographic elevations indicating that groundwater flow generally follows surface topography. This correlation is in line with the baseline water measurements collected previously by WSM Leshika, which had an 89% correlation and the first and second quarterly survey which had an 86% correlation. Abstraction activities have been undertaken throughout the monitoring period hence a slight deviation in groundwater levels is observed, but generally a good water level and topography correlation is evident. The water levels measured for the three quarters have indicated a fluctuation exceeding 2 m for MTLBH1, RFBH4, RPBH1, WBR50 and ZNBH3.

The fluctuation observed in the water levels within equipped boreholes (MTLBH1, RFBH4, RPBH3 and ZNBH3) is due the impact of abstraction activities. It should be noted that RPBH1 is not permanently equipped, equipment is rotated between RPBH1 and RPBH3.

The water levels in WBR50 indicate a fluctuation of approximately 10 m between three quarterly surveys, this borehole is not equipped, and the third quarterly result does not indicate an error in the previously survey results. It is likely that there is an impact from nearby abstraction which is influencing the water levels in the borehole.

The following boreholes have differences of more than 2 m between the minimum and maximum water level measurements:

- The water level at MTLBH1 was found to have increased (recovered) in the third quarter by 6.24 mbgl from the second quarter;
- The water level at RFBH4 was found to have decreased in the first quarter by 3.90 mbgl from the investigations by WSM Leshika. Water levels increased in the third quarter from the first quarter by 4.10 mbgl
- The water level at RPBH1 was found to have increased in the third quarter by 6.48 mbgl from the second quarter;
- The water level at WBR50 was found to have increase from the first to the second quarter by 9.20 mbgl. In the third quarter the water level decreased by 4.10 mbgl compared to water levels measured in the second quarter; and
- The water level at ZNBH3 was found to decreased by 9.10 mbgl from the investigations conducted by WSM Leshika.

Based on the topography for the MCWAP-2 pipeline, groundwater will flow from the highlands in the east towards the Limpopo River to the west and north of the pipeline. Local variations in

groundwater flow will be towards the Crocodile, Matlabas and Sandloop Rivers where groundwater has not been affected by abstraction.

Table 7: Third Quarterly Water Levels

Borehole ID	Borehole Elevation (mamsl)	Water Level (mbgl)			
		Third Quarterly Measurement	Minimum	Maximum	Average
BCBH4	1003	34.50	34.50	34.63	34.57
DPBH1	902	5.83	5.83	7.31	6.63
GLBH1	974	42.73	42.00	42.73	42.37
HBH1	907	6.90	6.90	7.24	7.09
HLBH1	879	7.16	-	-	7.16
HPBH2	973	50.24	-	-	50.24
HPBH3	965	36.62	34.19	36.62	35.41
MBH09	911	22.17	22.17	22.62	22.42
MLBH1	995	26.11	26.00	26.20	26.13
MTLBH1	1025	26.22	26.22	32.46	29.34
MVBH31	901	9.39	8.64	9.39	9.02
MVBH32	902	6.80	-	-	6.80
PABH3	962	46.20	45.70	46.20	45.95
RBH1A	919	38.55	38.10	38.55	38.33
RFBH4	924	22.00	22.00	26.10	23.43
RPBH1	961	5.74	5.74	12.22	9.65
RPBH2	956	2.43	2.43	5.42	4.09
RPBH3	956	14.08	14.08	15.00	14.54
WBR50	906	27.70	23.60	32.80	28.03
WKBH3	1028	51.42	51.22	51.48	51.37
WVBH1C	976	0.00	0.00	0.00	0.00
WVBH1B	928	10.14	10.14	13.00	11.31
WVBH2	939	0.00	0.00	0.00	0.00
WVBH2A	963	9.92	9.92	10.96	10.37

Borehole ID	Borehole Elevation (mamsl)	Water Level (mbgl)			
		Third Quarterly Measurement	Minimum	Maximum	Average
ZNBH1	957	24.63	24.63	25.83	25.44
ZNBH3	954	25.30	16.20	25.30	20.75

Table 8: Once-Off Water Level Measurements

Once-Off Measured Water Levels Collected During Monitoring				
Borehole ID	Borehole Elevation (mamsl)	Quarter Measured	Water Level (mbgl)	Comment
MBBH3	966	Hydrocensus/ First	41.05	
MSBH2	1003	Second	31.49	
MTLBH2	1008	Hydrocensus/ First	26.02	
MVBH5	907	Second	11.52	
NPBH10	979	Hydrocensus/ First	28.8	
NPBH8	987	Hydrocensus/ First	10.63	
PEBH2	919	Second	61.95	
RBH1B	995	Hydrocensus/ First	38.00	Dynamic water level
RVBH1	1016	Hydrocensus/ First	36.00	Dynamic water level
RVBH2	1016	Hydrocensus/ First	36.00	Dynamic water level
WBR40	906	Hydrocensus/ First	75	
WVBH2A	963	Hydrocensus/ First	10.6	
ZNBH1	957	Hydrocensus/ First	25.83	

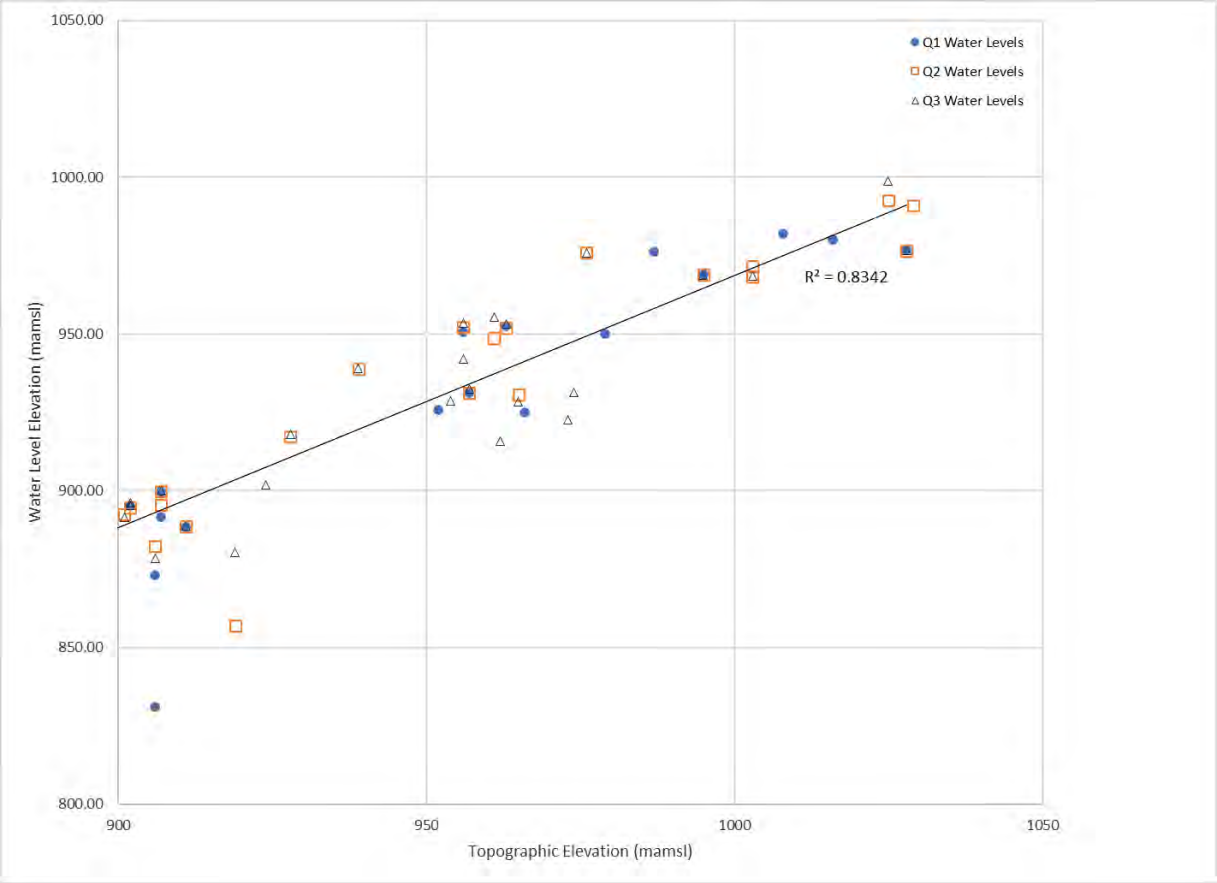

Figure 8: Correlation Graph for the Third Quarterly Results

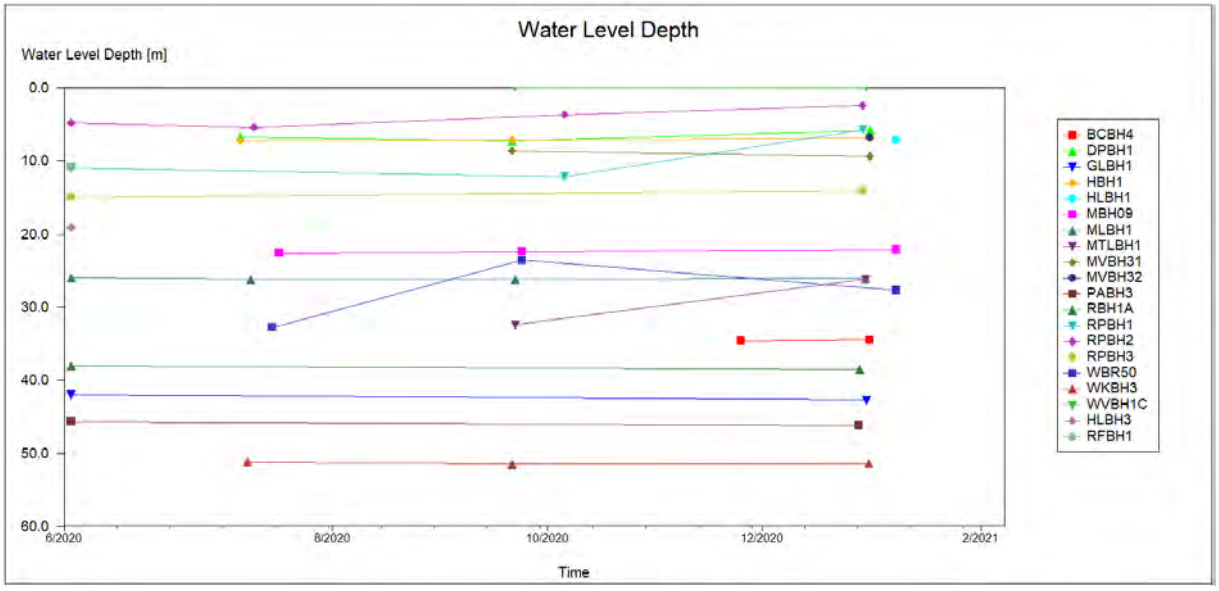

Figure 9: Third Quarterly Water Level Trends

4.2.2. Hydrochemistry

The borehole samples have been grouped according to the geological formations in which they are located (Group 1 and 2). Group 3 consists of boreholes located in various, smaller, geological units, and these were grouped together for ease of data display (Table 9).

Table 9: Sample Grouping according to Geology

Borehole ID	Geology	Water Quality Group	Borehole ID	Geology	Water Quality Group
GLBH1	Waterberg Group, Kransberg Subgroup	Group 1	BCBH2	Swazian Erathem	Group 3
MBH09			BCBH4	Swazian Erathem	
MSBH2			DKBH1	Lebowa Bushveld complex	
NPBH10			DKBH2	Mokolian Erathem	
NPBH9			DKBH4	Alma Nylstroom	
PEBH1			DPBH1	Pretoria Transvaal	
RBH1A			HBH1	Pretoria Transvaal	
RBH2			HKBH4	Karoo	
RPBH1			HLBH1	Karoo	
RPBH2			HOBH1A	Mokolian Erathem	
RPBH3			HOBH1C	Mokolian Erathem	
WBR50			HPBH1	Buffelsfontein Group, Transvaal Subgroup	
ZFBH1			HPBH3	Buffelsfontein Group, Transvaal Subgroup	
ZFBH3			LBBH3	Swazian erathum	
ZNBH1			MBBH2B	Swazian erathum	
ZNBH3			MBBH3	Swazian erathum	
HOBH1B	Waterberg Group, Matlabas Subgroup	Group 2	MVBH17	Buffelsfontein Transvaal	
IMBH1			MVBH2	Malmani Transvaal	
MLBH1			MVBH31	Black reef Transvaal	
MTLBH1			MVBH32	Malmani Transvaal	
RFBH4			MVBH5	Malmani Transvaal	
RFBH6			PABH3	Swazian erathum	
WKBH1			PEBH2	Karoo	
WKBH3			RFBH2	Mokolian Erathem	
WVBH1			RVBH4	Mokolian Erathem	
WVBH1B			WVBH2A	Mokolian Erathem	
WVBH1C			ZSBH3	Malmani Transvaal	
WVBH2			-		

The Piper Diagrams (Figure 10 to Figure 14) and Expanded Durov (Figure 11 to Figure 15) graphs have been used to describe the hydrochemistry for the third quarterly monitoring results.

The Piper Diagram is particularly useful for identifying groundwater facies which groups groundwater of similar chemistry into one section. The Expanded Durov diagram improves on the Piper Diagram by displaying important hydrochemical processes, such as ion exchange, simple dissolution and mixing of waters of different qualities.

The third quarterly monitoring results indicate a distribution with a range in dominance between the calcium, magnesium and sodium-potassium cations and the alkalinity and chloride anions. The Expanded Durov graph assists with refining the major cations and anions for the samples. The following water types have been determined using the Piper Diagram and Expanded Durov graphs for the second quarterly results:

- According to the diagrams Group 1 is predominantly found to be sodium-chloride water type. This water type typically represents stagnant or low-flow groundwater which has undergone ion exchange as a result of high residence times in aquifers, that allows for rock-water interaction to take place. To a lesser magnitude some samples in Group 1 are found to be sodium bicarbonate water types. Samples with this water type indicate dynamic groundwater flow is taking place with ion exchange between the magnesium and sodium cations. Magnesium-chloride and magnesium-sulphate water have been found only in two samples; MSBH1 and RBH1A, respectively;
- The type of water predominantly found within Group 2 is magnesium-bicarbonate water. This water type indicates either freshly recharged groundwater or waters which originate from a limestone or dolomite aquifer and is related to limited ion exchange. To a lesser magnitude some samples are found to be sodium-sulphate, this may be from natural conditions at the various sites, attributed to the local geology or indicative of impacts by anthropogenic activities. Magnesium-chloride and sodium-chloride water have been found only in two samples; MTBH1 and WVBH1B, respectively; and
- The type of water predominantly found within Group 3 is magnesium-bicarbonate water. This water type indicates either freshly recharged groundwater or waters which originate from a limestone or dolomite aquifer and is related to limited ion exchange. Some boreholes reflect magnesium-chloride (WVBH2A and MVBH31), magnesium-sulphate and sodium bicarbonate (only DKBH1), sodium chloride and sodium sulphate type water (only RFBH2). The dominance of the sulphate anion may reflect the natural conditions at the various sites or be indicative of impacts by anthropogenic activities.

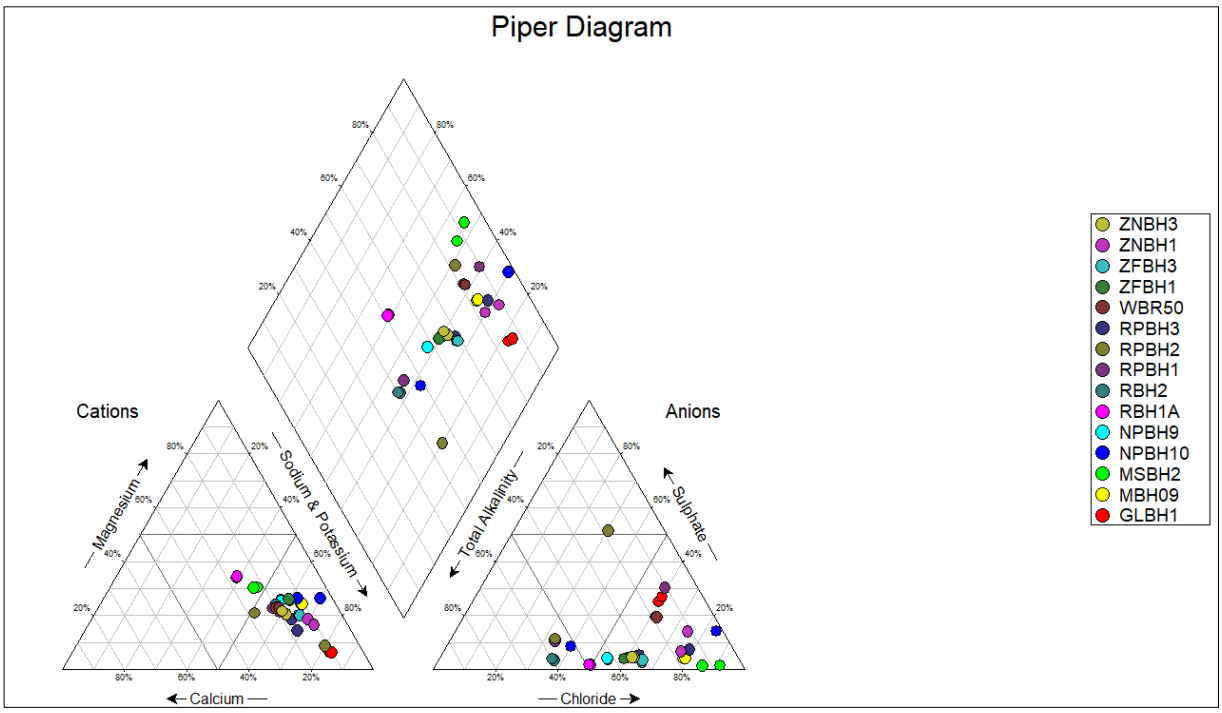

Figure 10: Third Quarterly Piper Diagram for Group 1

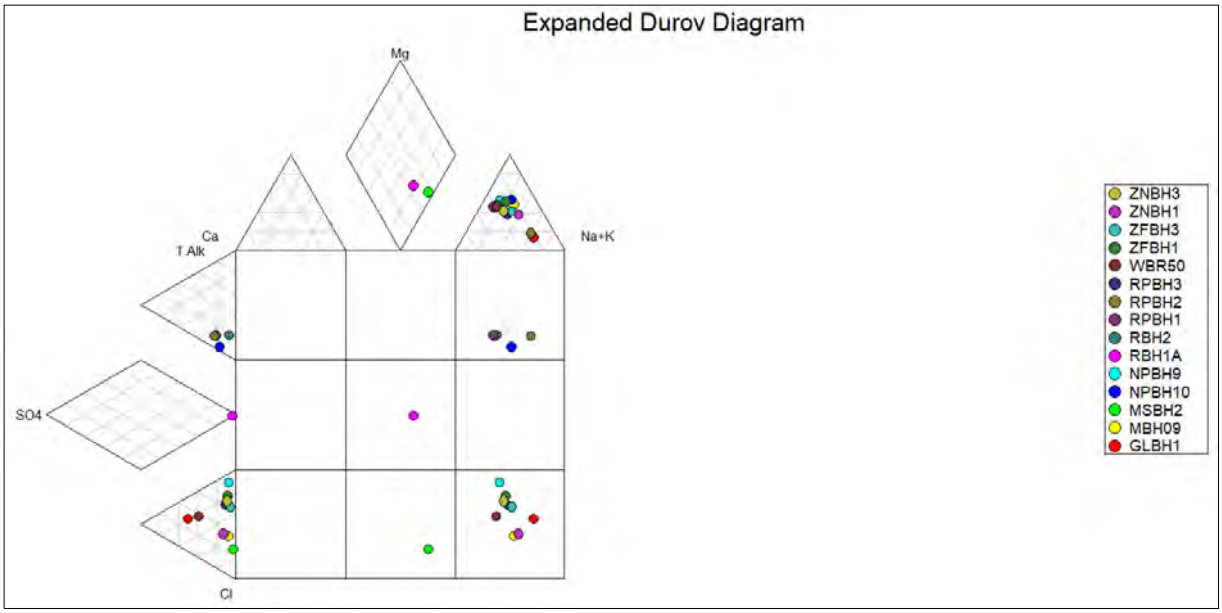

Figure 11: Third Quarterly Expanded Durov for Group 1

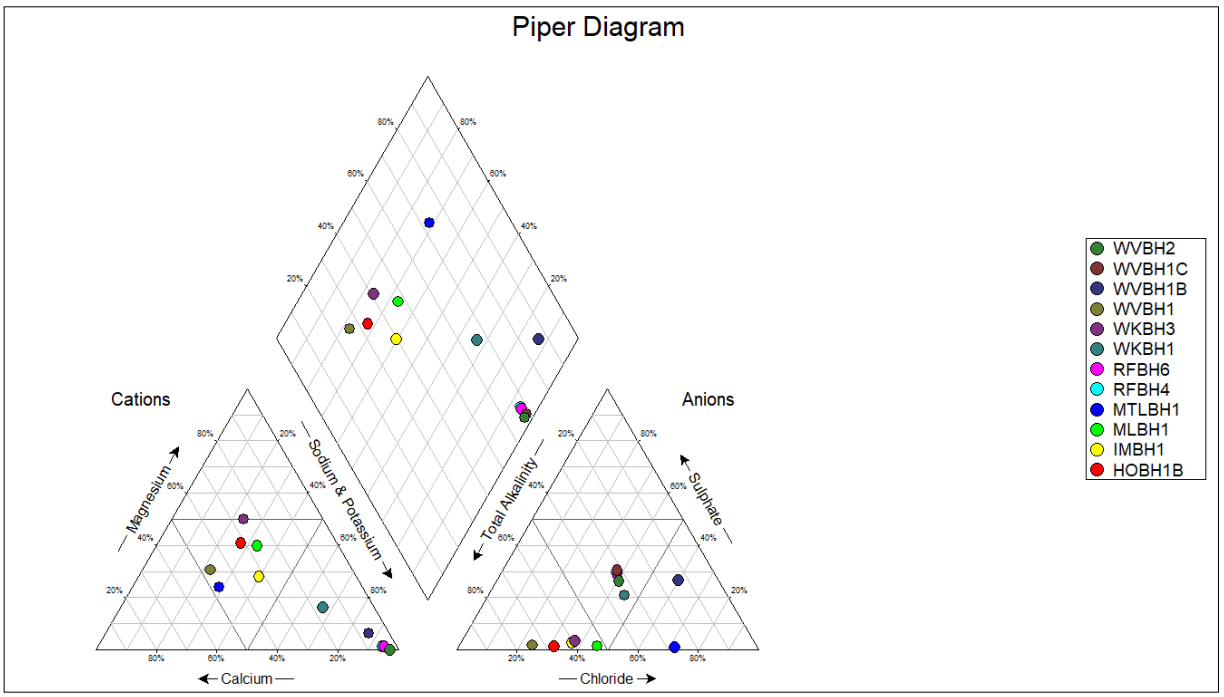

Figure 12: Third Quarterly Piper Diagram for Group 2

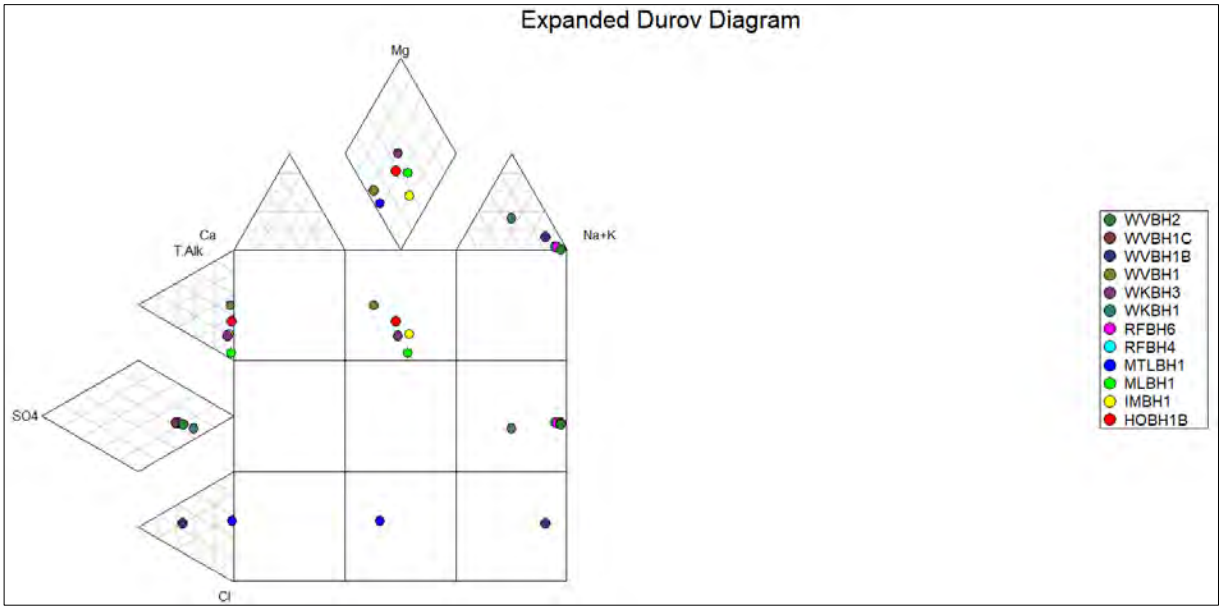

Figure 13: Third Quarterly Expanded Durov for Group 2

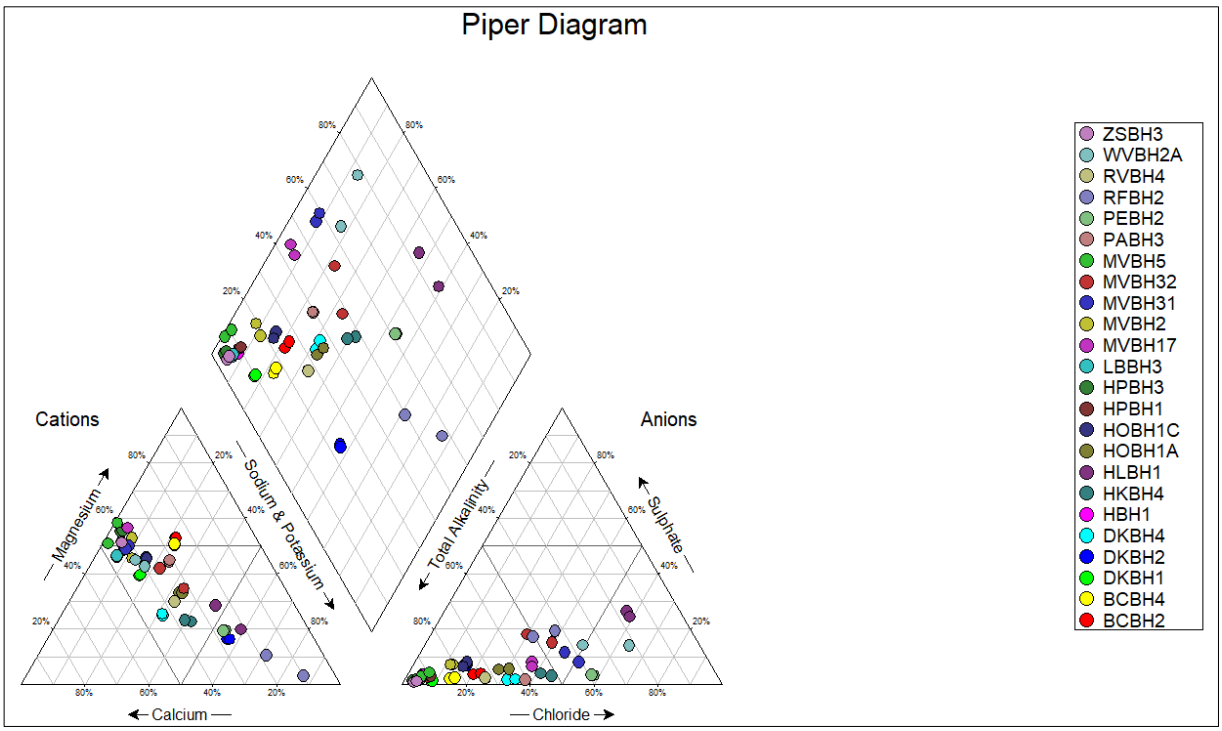

Figure 14: Third Quarterly Piper Diagram for Group 3

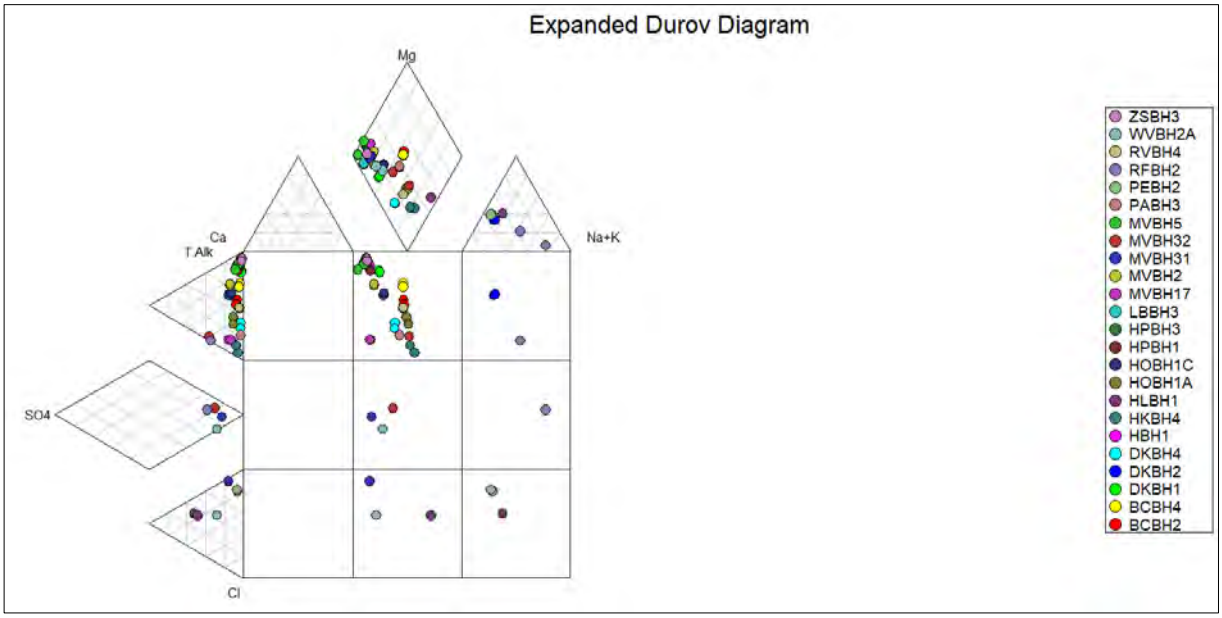

Figure 15: Third Quarterly Expanded Durov for Group 3

4.2.3. Water Quality

The water quality results for the fifty-three (53) monitoring locations were compared against the SANS 241: 2015 limits[2] and are provided in Annexure C. A summary of the results is given below and in Annexure F:

- Construction activities for the MCWAP-2 pipeline have not commenced yet and therefore there is currently no impact on the water quality results. Current concentrations will be representative of background conditions which can reflect natural conditions or impacts by anthropogenic activities (i.e., livestock farming). Sampling or lab errors can be identified once trends are established from all combined quarterly results;
- The water quality results were compared against the SANS 241: 2015 limits to determine the suitability of the groundwater for drinking water purposes. The SANS 241: 2015 limits are discussed according to the aesthetic, chronic health and acute health limit categories. The categories are described as:
  - Aesthetic limits are related to the appearance, odour and taste of the water, which have no health effects but reduce the appeal of water consumption;
  - Acute health limits are related to health effects which could occur from short term exposure and/or consumption of the water; and
  - Chronic health limits are related to health effects which could occur from long term exposure and/or consumption of the water;
- A total of eleven (11) boreholes (HOBH1C, HPBH1, LBBH3, MBBH3, MSBH2, MVBH2, MVBH5, NPBH9, PEBH2, RPBH3, ZSBH3) are within the aesthetic, acute health and chronic health SANS 241: 2015 water quality limits;
- A total of nine (9) boreholes (HOBH1B, RBH1A, HOBH1A, HPBH3, IMBH1, MLBH1, MVBH32, RFBH2, WVBH1) have concentrations above the aesthetic limits only. Exceedance was found for electrical conductivity, total dissolved solids, colour, turbidity, chloride, iron and manganese. No health effects are expected from consuming water from these boreholes however individuals may find the taste, odour or appearance of the water unappealing;
- Eighteen (18) boreholes (BCBH4, BPBH1, DKBH2, DKBH4, GLBH1, BCBH5, MBH09, MTLBH1, PABH3, RFBH4, RFBH6, RPBH1, RPBH2, WBR50, WKBH1, WKBH3, WVBH1C, WVBH2) have concentrations above the chronic health limits. Exceedance were measured for the following constituents and may yield the following health impacts:

[2] Operational limits are included in the SANS 241: 2015 guidelines. Operational limits determine the effectiveness of water treatment processes. As samples are collected from boreholes, the operational limit comparison has been excluded from this assessment.

- Fluoride concentrations above 1.5 mg/l may result in softening of enamel and mottling of teeth. At concentrations greater than 8 mg/l severe tooth damage can occur and with long term exposure crippling skeletal fluorosis is likely (DWAF, 1996);
- Arsenic: Concentrations above 10 µg/l (but less than 200 µg/l) arsenic can be tolerable but a low risk of skin cancer in highly sensitive individuals can occur after long term exposure (DWAF, 1996). Sources of arsenic include natural processes, as well as through mining and industrial uses (use in animal feed, wood preservative and pesticide);
- Barium: The SANS 241: 2015 guideline limit for barium is 700 µg/l. Sources of barium other than natural weathering processes include industrial waste or through the mixing of saline or brine waters;
- Iron: Concentrations between 1000 µg/l and 10000 µg/l, pronounced aesthetic effects (taste) may be present along with plumbing issues. Slight health effects can be experienced in young and sensitive individuals. The severity of health effects gradually increases with long term exposure to concentrations greater than 30000 µg/l (DWAF, 1996);
- Manganese: Concentrations between 150 µg/l and 1000 µg/l severe aesthetic effects will be present with no health effects. The severity of aesthetic effects will increase with increasing concentrations. At 5000 µg/l health effects will be noted but these are still classed as rare (DWAF, 1996);
- Nickel: the SANS 241: 2015 guideline limit for nickel is 70 ug/l. Sources of nickel include fertilizers and industrial processes (power plants, metal factories or waste incinerators;
- Uranium: Concentrations above 70 µg/l annual cancer risk increases to one in a million, and sensitive individuals may experience renal toxicity if their renal function is impaired (DWAF, 1996);

- Fifteen (15) boreholes (BCBH2, DKBH1, HKBH4, MVBH17, HLBH1, RVBH4, WVBH1B, MVBH31, NPBH10, RBH2, WVBH2A, ZFBH1, ZFBH3, ZNBH1, ZNBH3) are above the acute health limits. Exceedance were measured for the following constituents and may yield the following health impacts:
  - Sulphate: Concentrations above 200 mg/l brings about the tendency to develop diarrhoea in sensitive and some non-adapted individuals. A slight taste is noticeable. At concentrations above 1000 mg/l water will have a very salty and bitter taste and diarrhoea can be expected in all individuals;
  - Nitrate: Concentrations above 10 mg/l methemoglobinemia can occur in infants (increasing to certainly above 20 mg/l) and mucous membrane irritation will occur in adult above 20 mg/l (DWAF, 1996); and

- E. coli.: Concentrations above 10 counts/100 ml introduce a slight risk of microbial infection with continuous exposure; negligible effects with occasional or short-term exposure.

In addition to comparing water quality results to the requested SANS limits, the results were also classified using to the Water Research Commissions Quality of Domestic Water Supplies guideline (Water Research Commission, 2001) for drinking water health. The third quarter results were assessed with the maximum value classification using the drinking water health limits. The average value classification will be completed after the fourth quarterly survey. These results are provided in Annexure C. The Quality of Domestic Water Supplies are classified as follows:

- Class 0 (Blue) – Ideal water quality. Water is suitable for many generations, no effects;
- Class 1 (Green) – Good water quality. Water is suitable for lifetime use, with rare cases of sub-clinical effects;
- Class 2 (Yellow) – Marginal water quality. Water may be used without health effects by the majority of individuals except for sensitive individuals or after lifetime use;
- Class 3 (Red) – Poor water quality. Water poses a chronic health risk especially to babies, children and elderly individuals; and
- Class 4 (Purple) – Unacceptable water quality. Severe acute health effects, even with short term use.

The results of the third quarterly (maximum) classification according to the drinking health category are summarised as:

- Four (4) boreholes are classified as Class 1 (green) which is suitable for consumption, namely, BPBH1, HPBH1, LBBH3 and WVBH1;
- Eighteen (18) boreholes are classified as Class 2 (yellow) which is not suitable for consumption by sensitive individuals and may have health issues after lifetime use, namely, HOBH1C, BCBH2, BCBH4, BPBH1, HOBH1A, HPBH1, IMBH1, LBBH3, MBBH3, MLBH1, MSBH2, MTLBH1, MVBH31, MVBH32, NPBH9, PEBH2, RBH2, RPBH3, WVBH1, ZFBH3, ZNBH3, ZSBH3;
- Eleven (11) boreholes are classified as Class 3 (red) which poses a chronic health risk to sensitive individuals, namely, HOBH1B, MVBH2, MVBH17, NPBH10, PABH3, RVBH4, DKBH2, DKBH4, MVBH5, ZFBH1 and ZNBH1; and
- Twenty (20) boreholes are classified as Class 4 (purple) which poses acute health risks even for short term use, namely, DKBH1, HLBH1, HKBH4, HPBH3, RBH1A, WVBH1B, RFBH2, GLBH1, HBH1, MBH09, RFBH4, RFBH6, RPBH1, RPBH2, WBR50, WKBH1, WKBH3, WVBH1C, WVBH2 and WVBH2A.

The water quality trends from the geological unit of the Kransberg Subgroup (Group 1) have been consistently stable except for the following:

- MSBH2 has shown an increase in TDS and EC during the second quarter and has remained stable in since the third quarter;
- MBH09 and NPBH10 have shown an increase in TDS and EC in the third quarter; and
- WBR50 has shown an increase in TDS in the third quarter.

The water quality trends from the geological unit of the Matlabas Subgroup (Group 2) have been consistently stable for both TDS and EC, except for WVBH1B which showed increasing trends in the second quarter, however stability has been observed in the third quarter for this borehole.

Group 3 (which is representative of water quality from various geological units) indicates variation in trends for TDS and EC. The following boreholes show significant changes in TDS and EC:

- WVBH2A was stable in the first and second quarter for both TDS and EC, a distinct in increase for both constituents has been shown in the third quarter;
- HLBH1 has shown an upward trend for TDS, in the second quarter an evident increase was shown, and a slight increase has been shown in the third quarter;
- HLBH1 was stable in the first and second quarter for EC and has been observed to have increased in the third quarter;
- MVBH17 has been shown to be erratic for TDS; it was observed to have increased in the second quarter and decreased in the third quarter;
- MVBH31 indicated decreasing trends for TDS and EC from the first to the second quarter and stability has been shown from the second to the third quarter for both TDS and EC;
- MVBH32 has shown slightly decreasing trends for TDS and EC since the first quarter; and
- A slight increase in concentration for TDS and EC at RFBH2 is observed.

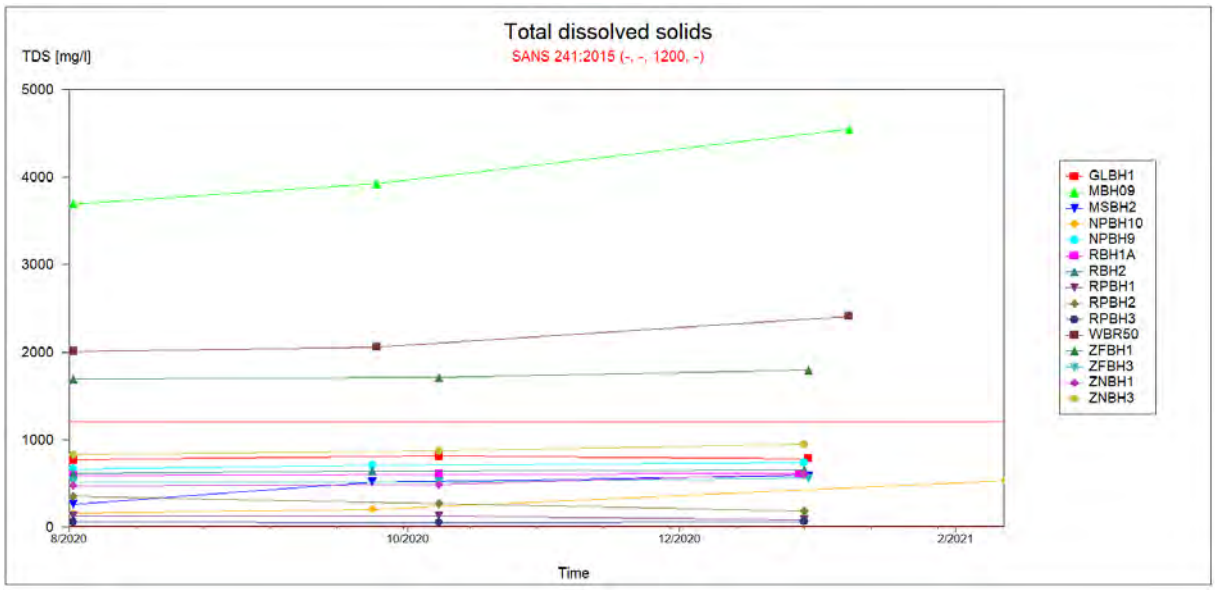

Figure 16: Third Quarterly TDS Trends for Group 1

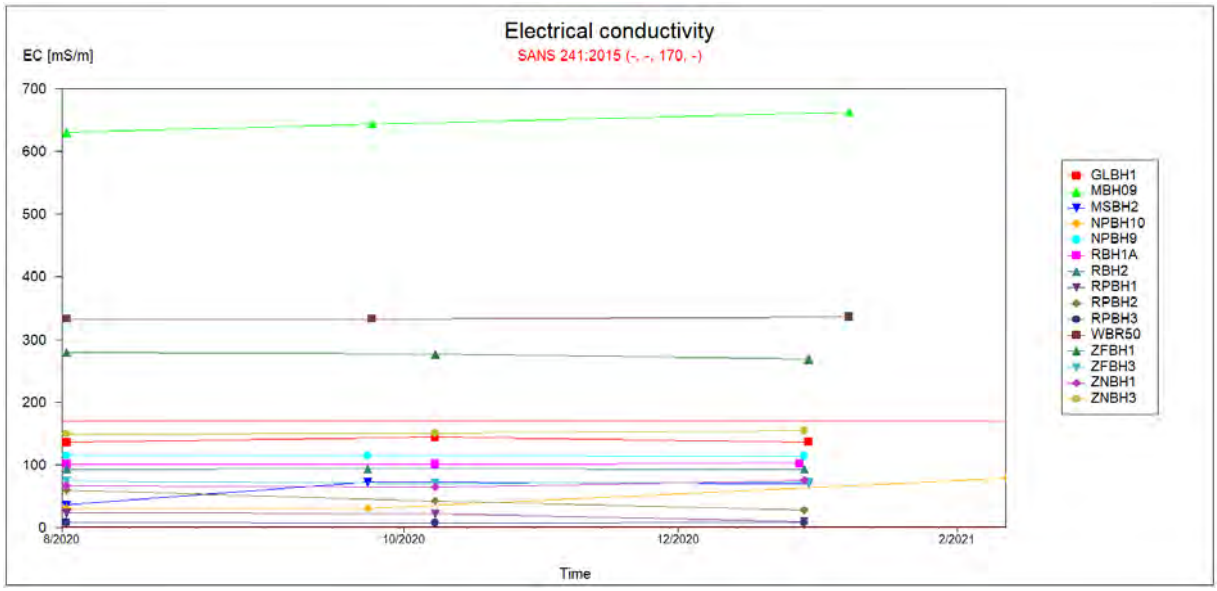

Figure 17: Third Quarterly EC Trends for Group 1

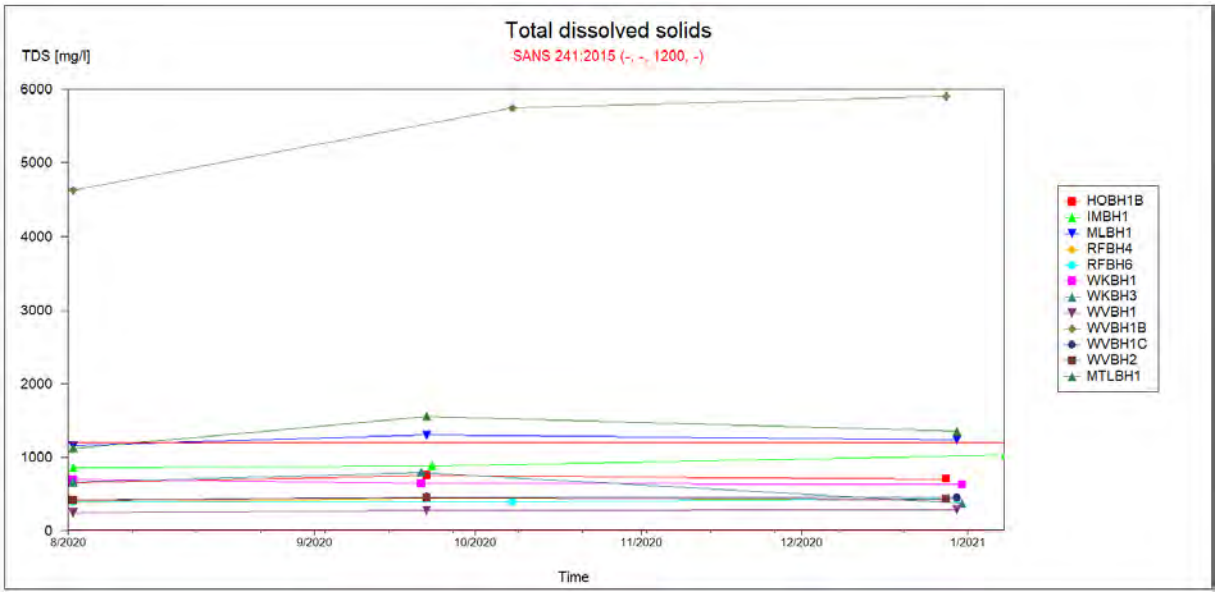

Figure 18: Third d Quarterly TDS Trends for Group 2

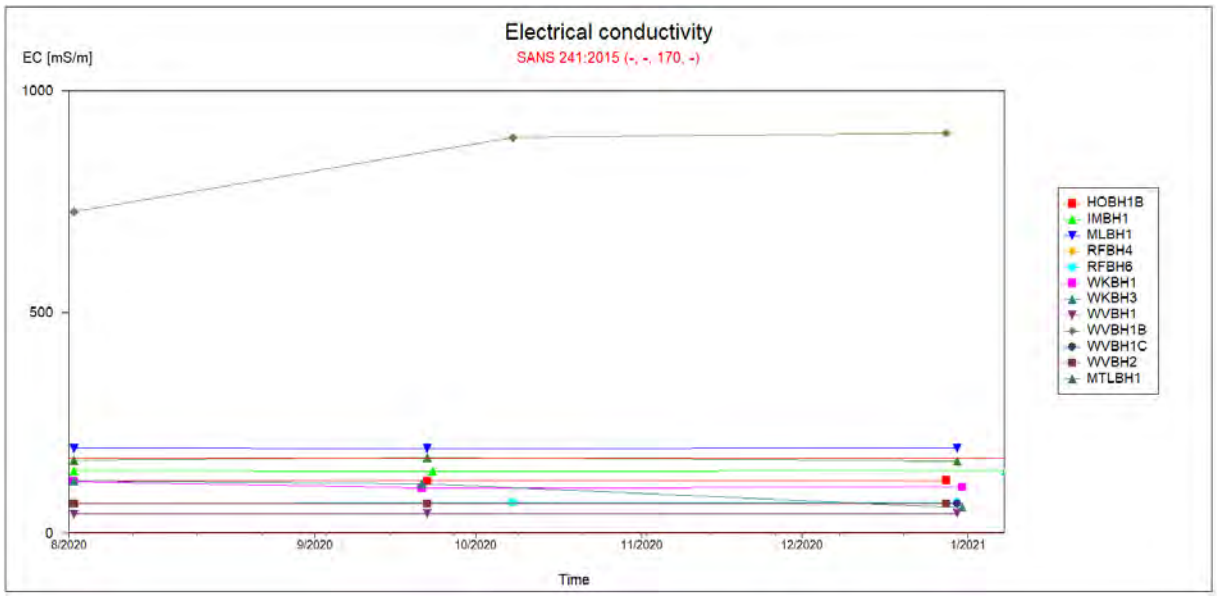

Figure 19: Third Quarterly EC Trends for Group 2

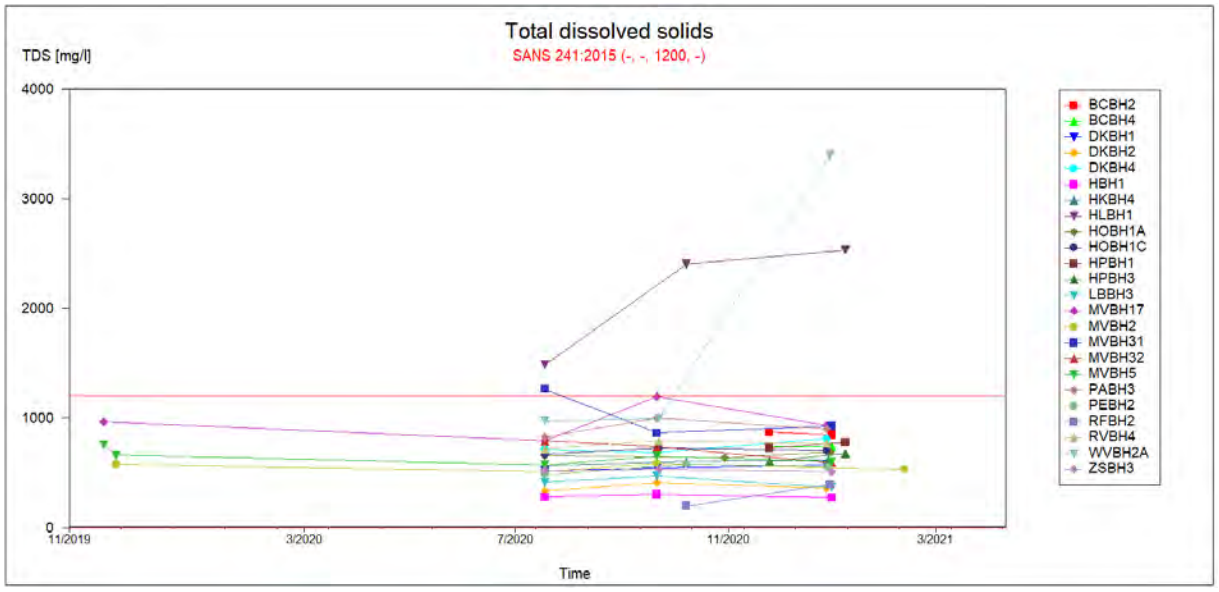

Figure 20: Third Quarterly TDS Trends for Group 3

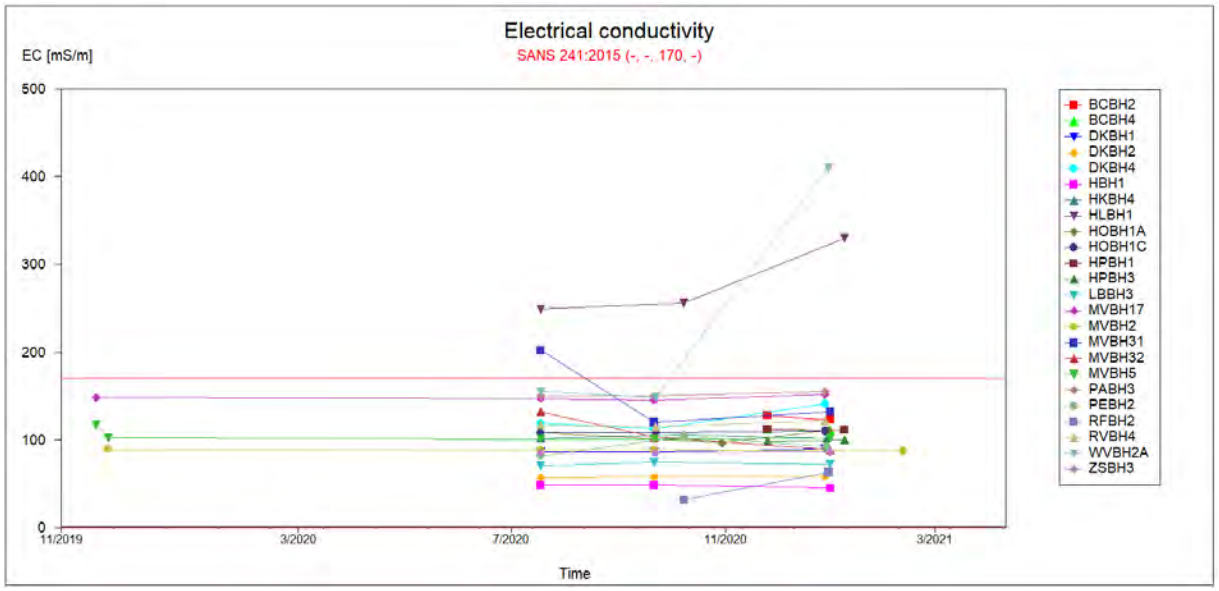

Figure 21: Third Quarterly EC Trends for Group 3

5. Conclusions

A total of one-hundred and seventy-seven (177) boreholes have been identified along the pipeline route which includes one-hundred and fifty-nine (159) boreholes identified by WSM Leshika during their hydrocensus survey in June 2019 and eighteen boreholes identified by Digby Wells on farms which were previously inaccessible.

The third quarterly event took place over three field surveys between 11th of January and the 26th of February 2021.

The hydrogeological baseline was compiled from the literature review and can be summarised as follows:

- The climate is semi-arid, with warm summers and mild-cold winters;
- Summer rainfall provides approximately 279 mm at Thabazimbi and 419 mm at Lephalale;
- The MCWAP-2 pipeline will transect in the A24C, A24H, A24F, A24J and A41C quaternary catchments, which are drained by the Crocodile River, Bierspruit, Sandspruit and Matlabas Rivers;
- The MCWAP-2 pipeline will cross over various geological lithologies associated with the Karoo Supergroup, Waterberg Group, Bushveld Complex and the Transvaal Supergroup;
- Important aquifers along the MCWAP-2 pipeline route are the dolomitic and alluvial aquifers; and
- Groundwater levels have a good correlation (89%) with surface topography and groundwater flow will therefore follow surface topography. Regionally the groundwater will flow from the highlands to the east of the pipeline towards the Limpopo River located to the west and north of the pipeline route. Local variations in the groundwater flow will be towards the Crocodile, Matlabas and Sandloop Rivers.

The third quarterly monitoring results are summarised as follows:

- Water levels range between 0 mbgl and 51 mbgl, with an average of 21 mbgl;
- The third quarterly water levels have an 83% correlation with topography;
- Five (5) boreholes have water level measurements which vary by more than 2 m between the minimum and maximum water level readings. The difference in measured water levels is attributed to abstraction within or nearby to the measured borehole;
- A total of fifty-three (53) samples were collected during the third quarterly survey. A sample was not collected for PEBH1 as the outlet pipe from which the sample is collected was flooded during January and February;

- Six (6) water types were identified from the Piper Diagram and Expanded Durov graphs in the first, second and third quarterly survey:
  - Magnesium bicarbonate;
  - Sodium bicarbonate;
  - Magnesium chloride;
  - Sodium chloride;
  - Magnesium sulphate; and
  - Sodium sulphate;
- A total of twenty (20) boreholes are not expected to have health affects according to the SANS 241: 2015 water quality guideline limits. Aesthetic effects which affect the taste, odour and appearance of water can be possible in nine (9) of these boreholes as a result of exceedance of the aesthetic limits for electrical conductivity, total dissolved solids, colour, turbidity, chloride, iron and manganese;
- A total of eighteen (18) boreholes exceeds the SANS 241:2015 chronic health limits. Parameters with exceedance include fluoride, arsenic, barium, manganese, uranium, nickel and iron;
- A total of fifteen (15) boreholes exceeds the SANS 241: 2015 acute health limits. Parameters with exceedances include nitrate, combined nitrate and nitrite, sulphate and E.coli;
- The water samples were also compared against the Quality of Domestic Water Supply guideline developed by the Water Research Commission. Based on the maximum sample results per parameter, four (4) boreholes are classed as good, eighteen (18) boreholes are classed as marginal, eleven (11) boreholes are classed as poor, and twenty boreholes are classed as unacceptable; and
- Construction activities for the MCWAP-2 pipeline have not commenced yet and therefore will not have had an impact on the current water quality results. Current concentrations will be representative of natural conditions or impacted on by other, current anthropogenic activities (i.e., livestock farming).

Table 10 provides an indication of the status of the various boreholes regarding suitability for drinking (human consumption). The suitability was determined based on the SANS and WRC (maximum) limits only. Consistency is shown as no significant changes between the second and third quarter were identified, except for nine (9) samples which have deteriorated in water quality (BPBH1, MTLBH1, HOBH1B MVBH31, RBH2, RVBH4, WKBH3, ZFBH3 and ZNBH3).

Outliers and anomalous results in the database can introduce misrepresentations to the current water quality state by skewing the average and inflating the maximum concentration. These will be identified and eliminated after the fourth quarterly survey so that a representative dataset

can be used to reassess the WRC maximum classification and assess the WRC average classification.

Table 10: Borehole Water Drinking Suitability

Borehole ID	Q1	Q2	Q3	Borehole ID	Q1	Q2	Q3
DKBH1	Unsuitable	Unsuitable	Unsuitable	**MVBH5**	Unsuitable	Unsuitable	Unsuitable
HKBH4	Unsuitable	Unsuitable	Unsuitable	**MVBH31**	Suitable	Suitable	Unsuitable
HLBH1	Unsuitable	Unsuitable	Unsuitable	**MVBH32**	Suitable	Suitable	Suitable
HOBH1B	Suitable	Suitable	Unsuitable	**NPBH10**	Suitable	Unsuitable	Unsuitable
HOBH1C	Suitable	Suitable	Suitable	**NPBH9**	Suitable	Suitable	Suitable
MVBH17	Unsuitable	Unsuitable	Unsuitable	**PEBH1**	Suitable	Suitable	Not Sampled
PABH3	Unsuitable	Unsuitable	Unsuitable	**PEBH2**	Suitable	Suitable	Suitable
RBH1A	Suitable	Unsuitable	Unsuitable	**RBH2**	Suitable	Suitable	Unsuitable
RVBH4	Suitable	Suitable	Unsuitable	**RFBH4**	Unsuitable	Unsuitable	Unsuitable
WVBH1B	Unsuitable	Unsuitable	Unsuitable	**RFBH6**	Unsuitable	Unsuitable	Unsuitable
BPBH1	Suitable	Suitable	Unsuitable	**RPBH1**	Suitable	Unsuitable	Unsuitable
DKBH2	Unsuitable	Unsuitable	Unsuitable	**RPBH2**	Unsuitable	Unsuitable	Unsuitable
DKBH4	Unsuitable	Unsuitable	Unsuitable	**RPBH3**	Suitable	Suitable	Suitable
DPBH1	Suitable	N/A, replaced with RFBH2		**WBR50**	Unsuitable	Unsuitable	Unsuitable
GLBH1	Unsuitable	Unsuitable	Unsuitable	**WKBH1**	Unsuitable	Unsuitable	Unsuitable
HBH1	Suitable	Unsuitable	Unsuitable	**WKBH3**	Suitable	Suitable	Unsuitable
HOBH1A	Suitable	Suitable	Suitable	**WVBH1**	Suitable	Suitable	Suitable

Borehole ID	Q1	Q2	Q3	Borehole ID	Q1	Q2	Q3
IMBH1	Suitable	Suitable	Suitable	**WVBH1C**	Unsuitable	Unsuitable	Unsuitable
LBBH3	Suitable	Suitable	Suitable	**WVBH2**	Unsuitable	Unsuitable	Unsuitable
MBBH3	Suitable	N/A, substituted with MBBH2B	Suitable	**WVBH2A**	Unsuitable	Unsuitable	Unsuitable
MBH09	Unsuitable	Unsuitable	Unsuitable	**ZFBH1**	Suitable	Unsuitable	Unsuitable
MLBH1	Suitable	Suitable	Suitable	**ZFBH3**	Suitable	Suitable	Unsuitable
MSBH2	Suitable	Suitable	Suitable	**ZNBH1**	Suitable	Unsuitable	Unsuitable
MTLBH1	Suitable	Suitable	Unsuitable	**ZNBH3**	Suitable	Suitable	Unsuitable
MVBH2	Unsuitable	Unsuitable	Unsuitable	**ZSBH3**	Suitable	Suitable	Suitable
Replacement Boreholes							
RFBH2	N/A, substituted with DPBH1	Unsuitable	Unsuitable	**MBBH2B**	N/A, replacement for MBBH3	Suitable	Not Sampled
Additional Boreholes							
BCBH2	N/A, no access	Unsuitable	Unsuitable	**HPBH1**	N/A, no access	Suitable	Suitable
BCBH4	N/A, no access	Unsuitable	Unsuitable	**HPBH3**	N/A, no access	Unsuitable	Unsuitable

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DIGBY WELLS
ENVIRONMENTAL

Appendix A: Weekly Field Report

FIRST WEEKLY REPORT

Date	Environmental Report
11/01/2021 – 15/01/2021	Summer rains have dampened the ground which is assisting with controlling dust generated from vehicles. A lot of small animals (i.e., tortoises) were encountered on the road.

SECOND WEEKLY REPORT

Date	Environmental Report
22/01/2021 – 22/01/2021	No additional feedback for this week

THIRD WEEKLY REPORT

Date	Environmental Report
25/02/2021 – 26/02/2021	PEBH1 was inaccessible during the January and February field surveys, as the outlet pipe from which the sample is collected was flooded.

DIGBY WELLS
ENVIRONMENTAL

Appendix B: Borehole Locations

ID	Latitude	Longitude	Elevation	Farm
BCBH1	-24.4578	27.32351	997	Buffelsvley 127 KQ
BCBH2	-24.4458	27.31613	1002	Buffelsvley 127 KQ
BCBH4	-24.4459	27.31596	1003	Buffelsvley 127 KQ
BPBH1	-24.35641	27.49841	1029	Blaauwpan 133 KQ
BPBH10	-24.32537	27.48768	1019	Blaauwpan 133 KQ
BPBH2	-24.35948	27.48903	1032	Blaauwpan 133 KQ
BPBH3	-24.35935	27.48900	1032	Blaauwpan 133 KQ
BPBH4	-24.35955	27.48906	1032	Blaauwpan 133 KQ
BPBH5	-24.36722	27.47704	1037	Blaauwpan 133 KQ
BPBH6	-24.37936	27.46227	1041	Blaauwpan 133 KQ
BPBH7	-24.37941	27.46219	1041	Blaauwpan 133 KQ
BPBH8	-24.36579	27.45846	1039	Blaauwpan 133 KQ
BPBH9	-24.33225	27.49606	1009	Blaauwpan 133 KQ
DKBH1	-24.40227	27.42291	1076	Diepkuil 135 KQ
DKBH2	-24.41064	27.42045	1079	Diepkuil 135 KQ
DKBH3	-24.43061	27.42036	1095	Diepkuil 135 KQ
DKBH4	-24.38950	27.44666	1051	Diepkuil 135 KQ
DPBH1	-24.63315	27.78895	-	Donkerpoort 344 KQ RE/10/344
DSBH1	-23.93970	27.36395	995	Diepspruit 386 LQ Rem
DSBH2	-23.95635	27.39691	1005	Diepspruit 386 LQ Rem
GLBH1	-23.99785	27.38921	974	Groenland 397 LQ Portion 2
GRBH1	-24.23918	27.47133	993	Groenrivier 95 KQ Portion 37
GRBH2	-24.23926	27.47116	993	Groenrivier 95 KQ Portion 37
GRBH3	-24.24462	27.44841	1009	Groenrivier 95 KQ Portion 37
GRBH4	-24.23118	27.48192	975	Groenrivier 95 KQ Portion 37
HBH1	-24.63392	27.31468	-	Hanover 667 KQ Rem
HKBH1	-23.70211	27.43437	939	Hooikraal 315 LQ Rem
HKBH2	-23.70211	27.43443	939	Hooikraal 315 LQ Rem
HKBH3	-23.70305	27.43445	939	Hooikraal 315 LQ Rem
HKBH4	-23.70719	27.45062	940	Hooikraal 315 LQ Rem

ID	Latitude	Longitude	Elevation	Farm
HKBH5	-23.70680	27.45107	940	Hooikraal 315 LQ Rem
HLBH1	-23.68543	27.60393	879	Hanglip 508 LQ Rem of Portion 3
HLBH2	-23.68549	27.60384	879	Hanglip 508 LQ Rem of Portion 3
HLBH3	-23.68748	27.60382	878	Hanglip 508 LQ Rem of Portion 3
HLBH4	-23.68273	27.60914	879	Hanglip 508 LQ Rem of Portion 3
HOBH1A	-24.19294	27.45744	969	Haarlem Oost 51 KQ Rem
HOBH1B	-24.17543	27.43754	988	Haarlem Oost 51 KQ Portion 16
HOBH1C	-24.17661	27.44882	980	Haarlem Oost 51 KQ Portion 15
HOBH2A	-24.17886	27.45777	983	Haarlem Oost 51 KQ Portion 15
HOBH2	-24.18891	27.42356	1009	Haarlem Oost 51 KQ Portion 16
HOBH3	-24.17156	27.42062	988	Haarlem Oost 51 KQ Portion 16
HOBH4	-24.15887	27.42253	976	Haarlem Oost 51 KQ Portion 16
HOBH5	-24.15986	27.42238	977	Haarlem Oost 51 KQ Portion 16
HOBH6	-24.16239	27.42358	979	Haarlem Oost 51 KQ Portion 16
HPBH1	-24.5706	27.31666	972	Stratford 462 KQ
HPBH2	-24.5706	27.31683	973	Stratford 462 KQ
HPBH3	-24.5651	27.30531	965	Stratford 462 KQ
HPBH4	-24.5697	27.30822	964	Stratford 462 KQ
IMBH1	-24.02803	27.40199	942	Inkerman 10 KQ Portion 3
IMBH1A	-24.01797	27.37603	947	Inkerman 10 KQ Rem Portion 1
IMBH2	-24.01987	27.39657	942	Inkerman 10 KQ Portion 3
KBBH1	-24.47366	27.36007	1074	Karoobult 126 KQ Rem
KBBH2	-24.47417	27.35928	1069	Karoobult 126 KQ Rem
KBBH3	-24.47493	27.36021	1073	Karoobult 126 KQ Rem
KBBH4	-24.47596	27.36025	1073	Karoobult 126 KQ Rem
KBBH5	-24.47445	27.35218	1055	Karoobult 126 KQ Rem
KBBH6	-24.47488	27.35035	1052	Karoobult 126 KQ Rem
KBBH7	-24.47523	27.35010	1052	Karoobult 126 KQ Rem
LBBH1	-24.45620	27.41140	910	Leeuwbosch 129 KQ Portion 1
LBBH2	-24.44483	27.39131	964	Leeuwbosch 129 KQ Portion 1

ID	Latitude	Longitude	Elevation	Farm
LBBH3	-24.44111	27.37655	964	Leeuwbosch 129 KQ Portion 1
LBBH4	-24.44053	27.37824	964	Leeuwbosch 129 KQ Portion 1
LBBH5	-24.43516	27.37953	964	Leeuwbosch 129 KQ Portion 1
MBBH1A	-24.53946	27.31562	995	Mecklenberg 311 KQ Rem
MBBH1B	-24.51965	27.31100	990	Mecklenburg 310 KQ
MBBH2A	-24.53946	27.31565	995	Mecklenberg 311 KQ Rem
MBBH2B	-24.51896	27.30827	987	Mecklenburg 310 KQ
MBBH3	-24.52768	27.29381	966	Mecklenburg 310 KQ
MBBH3A	-24.52118	27.34364	1074	Mecklenberg 311 KQ Rem
MBBH4	-24.50520	27.32615	1019	Mecklenburg 310 KQ
MBBH5	-24.51500	27.33708	1040	Mecklenburg 310 KQ
MBH01D	-23.71196	27.54827	-	Naauwontkomen 509 LQ Rem
MBH09	-23.70377	27.53679	-	Naauwontkomen 509 LQ Rem
MLBH1	-24.23029	27.45408	995	Matsulan 98 KQ Rem
MSBH1	-23.98179	27.41549	-	Mabulskop 406 LQ Rem
MSBH2	-23.97840	27.41140	-	Mabulskop 406 LQ Rem
MSBH3	-23.97944	27.41269	-	Mabulskop 406 LQ Rem
MTLBH1	-24.22172	27.42908	1025	Matlabas 94 KQ Portion 2
MTLBH2	-24.20886	27.43541	1008	Matlabas 94 KQ Portion 2
MTLBH4	-24.21404	27.46282	980	Matlabas 94 KQ Portion 2
MVBH1	-24.62641	27.31242	-	Mooivalei 342 KQ Portion 10
MVBH10	-24.60777	27.29841	-	Mooivalei 342 KQ Portion 4
MVBH11	-24.59942	27.28759	905	Mooivalei 342 KQ Portion 1
MVBH12	-24.59925	27.28750	905	Mooivalei 342 KQ Portion 1
MVBH13	-24.59900	27.28779	910	Mooivalei 342 KQ Portion 1
MVBH14	-24.59896	27.28790	910	Mooivalei 342 KQ Portion 1
MVBH15	-24.59870	27.28764	910	Mooivalei 342 KQ Portion 1
MVBH16	-24.59815	27.28837	910	Mooivalei 342 KQ Portion 1
MVBH17	-24.59216	27.29684	-	Mooivalei 342 KQ Portion 1
MVBH18	-24.59625	27.32851	-	Mooivalei 342 KQ Portion 29

ID	Latitude	Longitude	Elevation	Farm
MVBH19	-24.59605	27.32874	-	Mooivalei 342 KQ Portion 29
MVBH1A	-24.61275	27.30644	-	Mooivalei 342 KQ Portion 6
MVBH2	-24.62593	27.31203	-	Mooivalei 342 KQ Portion 10
MVBH20	-24.59399	27.33288	-	Mooivalei 342 KQ Portion 29
MVBH21	-24.59751	27.32437	-	Mooivalei 342 KQ Portion 23
MVBH22	-24.60416	27.31246	-	Mooivalei 342 KQ Portion 23
MVBH23	-24.60032	27.32419	-	Mooivalei 342 KQ Portion 25
MVBH24	-24.60226	27.31968	-	Mooivalei 342 KQ Portion 25
MVBH25	-24.60441	27.31150	-	Mooivalei 342 KQ Portion 24
MVBH26	-24.61511	27.30161	-	Mooivalei 342 KQ Portion 6
MVBH27	-24.61453	27.30102	-	Mooivalei 342 KQ Portion 6
MVBH28	-24.61411	27.30063	-	Mooivalei 342 KQ Portion 6
MVBH29	-24.61291	27.29958	-	Mooivalei 342 KQ Portion 5
MVBH2A	-24.60879	27.30390	-	Mooivalei 342 KQ Portion 5
MVBH3	-24.62312	27.31097	-	Mooivalei 342 KQ Portion 9
MVBH30	-24.60071	27.32336	-	Mooivalei 342 KQ Portion 25
MVBH31	-24.6077	27.2983	-	Mooivalei 342 KQ Portion 4
MVBH32	-24.6122	27.2999	-	Mooivalei 342 KQ Portion 5
MVBH3A	-24.60724	27.29842	-	Mooivalei 342 KQ Portion 4
MVBH4	-24.62701	27.31313	-	Mooivalei 342 KQ Rem
MVBH5	-24.61751	27.30994	-	Mooivalei 342 KQ Portion 8
MVBH6	-24.61851	27.30970	-	Mooivalei 342 KQ Portion 8
MVBH7	-24.60886	27.29940	-	Mooivalei 342 KQ Portion 4
MVBH8	-24.60897	27.29932	-	Mooivalei 342 KQ Portion 4
MVBH9	-24.60917	27.29910	-	Mooivalei 342 KQ Portion 4
NPBH1	-23.87692	27.44386	1034	Naauwpoort 363 LQ Rem
NPBH10	-23.85530	27.41278	979	Naauwpoort 363 LQ Rem
NPBH2	-23.87708	27.44251	1033	Naauwpoort 363 LQ Rem
NPBH3	-23.87649	27.44270	1033	Naauwpoort 363 LQ Rem
NPBH4	-23.87630	27.44256	1033	Naauwpoort 363 LQ Rem

ID	Latitude	Longitude	Elevation	Farm
NPBH5	-23.87629	27.44105	1032	Naauwpoort 363 LQ Rem
NPBH6	-23.87984	27.44214	1038	Naauwpoort 363 LQ Rem
NPBH7	-23.86853	27.42552	1011	Naauwpoort 363 LQ Rem
NPBH8	-23.85882	27.43121	987	Naauwpoort 363 LQ Rem
NPBH9	-23.87203	27.40757	993	Naauwpoort 363 LQ Rem
PABH1	-24.49167	27.25153	946	Paarl 124 KQ Portion 6
PABH2	-24.49241	27.27088	957	Paarl 124 KQ Portion 6
PABH3	-24.48159	27.27153	962	Paarl 124 KQ Portion 6
PEBH1	-23.72327	27.42868	-	Pontes Estates 712 KQ Rem
PEBH2	-23.70607	27.41249	919	Pontes Estates 712 KQ Rem
RBH1A	-23.87266	27.39197	998	Rooipan 355 LQ Portion 2
RBH1B	-23.89722	27.38005	-	Rooipan 357 LQ Portion 4/357
RBH2	-23.89691	27.40076	-	Rooipan 357 LQ Portion 4/357
RFBH1	-24.06265	27.38229	924	Rietfontein 15 KQ Rem
RFBH1A	-24.05151	27.36243	921	Rietfontein 820 KQ Rem
RFBH2	-24.07468	27.40210	927	Rietfontein 15 KQ Rem
RFBH2A	-24.05523	27.36531	922	Rietfontein 820 KQ Rem
RFBH3	-24.07541	27.40298	927	Rietfontein 15 KQ Rem
RFBH3A	-24.05935	27.37604	926	Rietfontein 820 KQ Rem
RFBH4	-24.05292	27.40588	952	Rietfontein 15 KQ Rem
RFBH4A	-24.04774	27.38809	943	Rietfontein 820 KQ Rem
RFBH5	-24.04763	27.38859	943	Rietfontein 820 KQ Rem
RFBH6	-24.04362	27.40075	953	Rietfontein 820 KQ Rem
RPBH1	-23.83410	27.41434	961	Rhenosterpan 361 LQ Rem and portion 4
RPBH1A	-23.85852	27.40092	982	Rhenosterpan 361 LQ Portion5
RPBH2	-23.83146	27.41859	956	Rhenosterpan 361 LQ Rem and portion 4
RPBH3	-23.82043	27.43211	956	Rhenosterpan 361 LQ Rem and portion 4
RVBH1	-24.30373	27.45399	1016	Ruigtevley 97 KQ
RVBH2	-24.30422	27.45406	1016	Ruigtevley 97 KQ

ID	Latitude	Longitude	Elevation	Farm
RVBH3	-24.30300	27.45397	1016	Ruigtevley 97 KQ
RVBH4	-24.30678	27.45579	1017	Ruigtevley 97 KQ
RVBH5	-24.30679	27.45578	1017	Ruigtevley 97 KQ
RVBH6	-24.30684	27.45575	1017	Ruigtevley 97 KQ
RVBH7	-24.30702	27.45558	1017	Ruigtevley 97 KQ
WBR40	-23.69914	27.53914	-	Hieromtrent 460 LQ Rem
WBR50	-23.69913	27.53919	-	Hieromtrent 460 LQ Rem
WKBH1	-24.27999	27.44246	-	Witklip 665 KQ Portion 4
WKBH2	-24.27642	27.43905	-	Witklip 665 KQ Portion 4
WKBH3	-24.27988	27.44692	-	Witklip 665 KQ Portion 4
WVBH1	-24.09650	27.41369	946	Welgevonden 16 KQ Portion 9
WVBH1B	-24.08446	27.41269	928	Welgevonden 16 KQ Port 2,5 and 6 (Portion 5)
WVBH1C	-24.15326	27.42197	976	Welgevonden 949 KQ
WVBH2A	-24.11255	27.41487	963	Welgevonden 949 KQ
WVBH2B	-24.09673	27.42111	994	Welgevonden 16 KQ Port 2,5 and 6 (Portion 2)
WVBH2C	-24.09748	27.41325	949	Welgevonden 16 KQ Portion 9
ZFBH1	-23.93196	27.37727	998	Zandfontein 382 LQ Portion 2
ZFBH2	-23.93412	27.38520	1001	Zandfontein 382 LQ Portion 2
ZFBH3	-23.92270	27.39542	1025	Zandfontein 382 LQ Portion 2
ZFBH4	-23.91562	27.37655	1007	Zandfontein 382 LQ Portion 2
ZNBH1	-23.76902	27.41399	957	Zandnek 358 LQ Portion 1
ZNBH2	-23.76205	27.40328	955	Zandnek 358 LQ Portion 1
ZNBH3	-23.77077	27.41448	954	Zandnek 358 LQ Portion 1
ZNBH4	-23.77156	27.41367	955	Zandnek 358 LQ Portion 1
ZSBH1	-24.43254	27.38391	1103	Zondagskuil 130 KQ Rem
ZSBH2	-24.42947	27.39315	1112	Zondagskuil 130 KQ Rem
ZSBH3	-24.42766	27.39718	1104	Zondagskuil 130 KQ Rem
ZSBH4	-24.41305	27.39128	910	Zondagskuil 130 KQ Rem

DIGBY WELLS
ENVIRONMENTAL

Appendix C: Third Quarterly Water Quality Results

Site Name	Date	pH	EC mS/m	TDS mg/l	Colour PtCo Units	Turbidity NTU	Free Residual Chlorine as Cl_2 mg/l	Monochloramine	Total Alkalinity as $CaCO_3$ mg/l	Cl mg/l	SO_4 mg/l	F mg/l	NO_3-N mg/l	NO_2-N mg/l	Combined NO_3 and NO_2 mg/l	SiO_2 mg/l	Total Organic Carbon as C mg/l	Free CN µg/l	Phenols µg/l	LR µg/l	$CHCl_3$ µg/l	$CHBr_3$ µg/l	$CHBr_2Cl$ µg/l	$CHBrCl_2$ µg/l	Combined Trihalomethanes mg/l	Oil and Grease
SANS 241: 2015 Drinking Water Limits	Aesthetic	-	170	1200	15	5	-	-	-	300	250	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-
	Chronic health	-	-	-	-	-	5	3	-	-	-	1.5	-	-	-	-	10	-	-	1	300	100	100	60	1	-
	Acute health	-	-	-	-	-	-	-	-	-	500	-	11	0.9	1	-	-	200	-	-	-	-	-	-	-	-
WHO Limits	Drinking Water 4th Edition	-	-	-	-	-	5	3	-	-	-	1.5	50	3	-	-	-	-	-	1	300	100	100	60	1	-
FULL SANS ANALYSIS																										
DKBH1	11/01/2021	7.2	90.2	572	1	0.2	-0.1	-0.1	464	33	6	0.5	4.8	-0.05	0.4	53	-1	-10	-10	-0.15	-5	-5	-2	-10	-0.1	-1
HKBH4	12/01/2021	7.5	102	618	1	0.2	-0.1	-0.1	292	157	20	0.8	5.6	-0.05	0.5	19.3	-1	-10	-10	-0.15	-5	-5	-2	-10	-0.1	-1
HLBH1	22/01/2021	7.5	330	2534	1	1.3	-0.1	-0.1	0	684	382	2.2	4.1	-0.05	0.4	38	-1	-10	-10	-0.15	-5	-5	-2	-10	-0.1	0
HOBH1B	11/01/2021	7	120	710	1	0.2	-0.1	-0.1	472	149	9	0.8	2.4	-0.05	0.2	38	-1	-10	-10	-0.15	-5	-5	-2	-10	-0.1	-1
HOBH1C	11/01/2021	7.1	110	706	1	0.1	-0.1	-0.1	492	72	39	0.5	4	-0.05	0.3	72	1	-10	-10	-0.15	-5	-5	-2	-10	-0.1	-1
MVBH17	11/01/2021	7	152	930	1	1.4	-0.1	-0.1	440	209	48	0.7	12	-0.05	1.1	17.8	-1	-10	-10	-0.15	-5	-5	-2	-10	-0.1	-1
PABH3	11/01/2021	7.2	155	902	1	0.3	-0.1	-0.1	520	230	13	0.4	4.5	-0.05	0.4	53	-1	-10	-10	-0.15	-5	-5	-2	-10	-0.1	-1
RBH1A	11/01/2021	7.1	102	612	1	15	1.5	0.5	264	187	9	0.2	2	-0.05	0.2	56	-1	-10	-10	-0.15	-5	-5	-2	-10	-0.1	-1
RVBH4	11/01/2021	7.4	122	768	1	0.1	-0.1	-0.1	420	102	13	0.8	24	-0.05	2.2	64	-1	-10	-10	-0.15	8	-5	-2	-10	-0.1	-1
WVBH1B	11/01/2021	7.7	904	5904	18	6.1	1	0.5	688	2178	1208	9.8	1.7	-0.05	0.1	13.1	1.9	-10	-10	-0.15	-5	-5	-2	-10	-0.1	-1
REDUCED SANS ANALYSIS																										
BCBH2	14/01/2021	7.9	123	846	-1	0.3	-1	-1	392	86	20	0.6	17	-0.05	1.6	78	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
BCBH4	14/01/2021	7.3	111	740	-1	1.4	-1	-1	432	57	12	0.6	7.6	-0.05	0.7	78	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
BPBH1	14/01/2021	7.1	131	820	-1	0.3	-1	-1	408	137	7	0.6	2.9	-0.05	0.3	71	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
DKBH2	11/01/2021	7.8	58.4	362	1	0.2	-1	-1	244	37	22	2	0.4	-0.05	-0.1	27	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
DKBH4	11/01/2021	6.9	141	812	1	0.1	-1	-1	500	193	13	2.2	5.5	-0.05	0.5	37	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
GLBH1	13/01/2021	8.1	137	784	1	1.5	-1	-1	80	262	159	7.7	0.2	-0.05	-0.1	15.8	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
HBH1	14/01/2021	7.2	45.1	274	1	53	-1	-1	240	9	9	-0.2	0.2	-0.05	-0.1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
HOBH1A	13/01/2021	7.2	111	692	-1	0.2	-1	-1	356	122	29	1.4	2.9	-0.05	0.3	56	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
HPBH1	22/01/2021	7	111	776	-1	0.2	-1	-1	476	29	15	0.2	2.4	-0.05	0.2	31	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
HPBH3	22/01/2021	7	100	676	-1	49	-1	-1	436	12	7	-0.2	0.6	-0.05	-0.1	15.6	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
IMBH1	22/01/2021	7.5	142	1028	-1	1.4	-1	-1	376	186	24	0.7	4.2	-0.05	0.4	86	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LBBH3	14/01/2021	7	72.3	372	-1	0.1	-1	-1	316	12	6	0.2	1.4	-0.05	0.1	38	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
MBBH3	14/01/2021	7.5	123	788	-1	0.2	-1	-1	500	50	14	0.2	2.5	-0.05	0.2	42	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
MBH09	22/01/2021	6.7	663	4542	-1	49	-1	-1	564	1861	128	5.8	3.1	0.05	0.3	34	1.8	-1	-1	-1	-1	-1	-1	-1	-1	-1
MLBH1	13/01/2021	7.3	193	1242	-1	2.8	-1	-1	412	336	15	1.2	1.9	-0.05	0.2	64	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
MSBH2	13/01/2021	5.7	71	586	-1	0.2	-1	-1	20	181	4	-0.2	9.9	-0.05	0.9	26	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
MTLBH1	13/01/2021	7.1	164	1356	1	1	-1	-1	224	428	9	1.4	0.1	-0.05	-0.1	38	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
MVBH31	14/01/2021	6.7	132	928	-1	0.3	-1	-1	244	219	46	0.2	18	-0.05	1.6	17.5	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
MVBH32	14/01/2021	7.6	88.9	592	4	1	-1	-1	244	101	82	0.3	2	-0.05	0.2	11.8	1.6	-1	-1	-1	-1	-1	-1	-1	-1	-1
MVBH5	14/01/2021	7	102	602	-1	0.2	-1	-1	368	19	17	-0.2	4	-0.05	0.4	9.5	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
NPBH9	12/01/2021	7.1	114	738	-1	0.7	-1	-1	240	218	22	0.6	8.1	-0.05	0.7	69	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
PEBH2	12/01/2021	7.1	92.4	556	1	0.4	-1	-1	176	185	15	0.8	1.1	-0.05	0.1	42	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
RBH2	12/01/2021	7.1	93.4	654	1	3.6	-1	-1	260	112	16	0.8	20	-0.05	1.8	94	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
RFBH2	13/01/2021	7.9	63.1	394	5	1.1	-1	-1	108	69	47	-0.2	0.8	-0.05	0.1	17.8	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

RFBH4	13/01/2021	8.2	68.3	434	-1	0.2	-1	-1	96	81	83	11	0.4	-0.05	-0.1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
RFBH6	13/01/2021	8.8	69.9	440	-1	0.2	-1	-1	96	82	83	14	2.7	-0.05	0.2	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
RPBH1	12/01/2021	5.3	9.8	88	-1	57	-1	-1	-4	16	11	-0.2	1.3	-0.05	0.1	25	1.9	-1	-1	-1	-1	-1	-1	-1	-1
RPBH2	12/01/2021	6	27.8	186	2	309	-1	-1	15	18	41	-0.2	0.2	-0.05	-0.1	23	2.3	-1	-1	-1	-1	-1	-1	-1	-1
RPBH3	12/01/2021	5.1	8	64	-1	6.8	-1	-1	-4	16	2	-0.2	2.4	-0.05	0.2	17.2	-1	-1	-1	-1	-1	-1	-1	-1	-1
WBR50	22/01/2021	7.1	336	2412	-1	50	-1	-1	300	716	301	2.2	0.6	-0.05	-0.1	11.5	-1	-1	-1	-1	-1	-1	-1	-1	1
WKBH1	14/01/2021	7.6	105	634	-1	0.6	-1	-1	88	170	144	8.4	0.3	-0.05	-0.1	37	-1	-1	-1	-1	-1	-1	-1	-1	-1
WKBH3	14/01/2021	6.6	59.6	378	7	24	-1	-1	196	77	13	7.6	0.2	-0.05	-0.1	29	3.1	-1	-1	-1	-1	-1	-1	-1	-1
WVBH1	13/01/2021	6.6	45.7	290	1	0.2	-1	-1	164	41	5	0.4	2.9	-0.05	0.3	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
WVBH1C	13/01/2021	9.1	68.3	458	3	12	-1	-1	100	82	81	14	0.4	-0.05	-0.1	44	-1	-1	-1	-1	-1	-1	-1	-1	-1
WVBH2	11/01/2021	9.2	68.2	434	1	0.4	-1	-1	100	82	49	1.3	0.3	-0.05	-0.1	45	-1	-1	-1	-1	-1	-1	-1	-1	-1
WVBH2A	13/01/2021	7.3	410	3398	7	30	-1	-1	340	704	208	2.6	150	0.1	13.8	73	4	-1	-1	-1	-1	-1	-1	-1	-1
ZFBH1	13/01/2021	7.5	269	1794	7	0.3	-1	-1	440	505	45	1.7	43	-0.05	3.9	86	2.6	-1	-1	-1	-1	-1	-1	-1	-1
ZFBH3	13/01/2021	6.9	72.8	562	-1	6.3	-1	-1	88	132	9	0.2	15	-0.05	1.4	99	-1	-1	-1	-1	-1	-1	-1	-1	-1
ZNBH1	12/01/2021	6.2	75.7	604	54	44	-1	-1	32	151	38	0.2	17	-0.05	1.6	103	7.5	-1	-1	-1	-1	-1	-1	-1	-1
ZNBH3	12/01/2021	7.2	155	948	2	0.8	-1	-1	252	325	32	0.6	11	1.6	2.8	33	1.3	-1	-1	-1	-1	-1	-1	-1	-1
ZSBH3	14/01/2021	7.1	86.6	508	-1	0.1	-1	-1	356	11	4	0.3	1.8	-0.05	0.2	41	-1	-1	-1	-1	-1	-1	-1	-1	-1
NPBH10	26/02/2021	5.7	79.3	532	2	1.1	0	0	-5	144	33	0.2	29	0.1	2.8	7.4	3.6	0	0	0	0	0	0	0	2
MVBH2	25/02/2021	7.5	87.2	534	1	0.2	0	0	416	42	35	0.3	1.9	-0.05	0.2	6.8	-1	0	0	0	0	0	0	0	-1

Site Name	Date	NH_3-N mg/l	Na mg/l	K mg/l	Ca mg/l	Mg mg/l	Al µg/l	Sb µg/l	As µg/l	Ba µg/l	B µg/l	Cd µg/l	Total Cr µg/l	Cu µg/l	Fe µg/l	Pb µg/l	Mn µg/l	Hg µg/l	Ni µg/l	Se	U µg/l	Zn	Total Coliform Bacteria (count /100ml)	E. coli (count / 100ml)	Heterotrophic Plate Count (count / 100ml)	Somatic Coliphages (count / 10ml)
SANS 241: 2015 Drinking Water Limits	Aesthetic	1.5	200	-	-	-	-	-	-	-	-	-	-	-	300	-	100	-	-	-	-	5	-	-	-	-
	Chronic health	-	-	-	-	-	-	20	10	700	2400	3	50	2000	2000	10	400	6	70	40	30	-	-	-	-	-
	Acute health	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-
WHO Limits	Drinking Water 4th Edition	-	50	-	-	-	-	20	10	1300	2400	3	50	2000	-	10	-	6	70	40	30	-	-	-	-	-
FULL SANS ANALYSIS																										
DKBH1	11/01/2021	-0.1	39	4.2	87	49	-100	1	1	96	54	-1	-25	10	-25	1	-25	-1	-25	-1	4	0.23	60	11	1300	0
HKBH4	12/01/2021	-0.1	87	7.6	74	28	-100	-1	-1	686	165	-1	-25	-10	-25	-1	-25	-1	-25	1	2	-0.025	290	84	350	2
HLBH1	22/01/2021	0.1	353	14.3	167	116	-100	-1	-1	34	343	-1	-25	72	69	-1	51	-1	-25	-1	6	-0.025	390	18	6300	0
HOBH1B	11/01/2021	-0.1	76	9.4	80	63	-100	1	-1	159	120	-1	-25	-10	-25	1	163	1	-25	1	12	-0.025	1000	0	2500	0
HOBH1C	11/01/2021	-0.1	46	1	92	67	-100	-1	-1	119	51	-1	-25	-10	-25	-1	-25	-1	-25	-1	9	-0.025	0	0	-10	0
MVBH17	11/01/2021	-0.1	25	8.2	133	93	-100	1	-1	-25	28	-1	-25	-10	75	-1	-25	2	-25	-1	1	0.027	470	0	1600	1
PABH3	11/01/2021	0.1	83	7.6	98	86	-100	1	-1	182	123	-1	-25	-10	26	1	-25	1	-25	-1	38	-0.025	66	0	180	0
RBH1A	11/01/2021	-0.1	83	8.5	52	41	109	-1	-1	409	73	-1	-25	38	195	2	179	-1	-25	-1	4	0.05	1400	0	1400	0
RVBH4	11/01/2021	-0.1	92	5.7	92	45	-100	1	1	737	172	-1	-25	-10	-25	-1	-25	4	-25	1	6	-0.025	110	17	980	0
WVBH1B	11/01/2021	-0.1	1869	9.2	110	67	116	1	3	222	927	-1	-25	51	770	5	4941	1	-25	-1	48	0.261	6600	0	1700	0
REDUCED SANS ANALYSIS																										
BCBH2	14/01/2021	-0.1	62	8.5	66	84	-100	-1	-1	142	80	-1	-25	38	-25	1	-25	-1	-25	-1	30	-0.025	-1	-1	-1	-1
BCBH4	14/01/2021	-0.1	62	7.4	67	78	-100	-1	-1	143	76	-1	-25	-10	33	-1	-25	-1	-25	-1	36	-0.025	-1	-1	-1	-1
BPBH1	14/01/2021	-0.1	61	5.6	112	78	-100	-1	-1	886	70	-1	-25	13	-25	-1	-25	-1	-25	-1	7	-0.025	-1	-1	-1	-1
DKBH2	11/01/2021	-0.1	79	1.1	32	12	-100	-1	15	69	469	-1	-25	-10	-25	-1	-25	-1	-25	-1	4	-0.025	-1	-1	-1	-1
DKBH4	11/01/2021	-0.1	104	2.2	125	45	-100	-1	-1	525	87	-1	-25	-10	-25	6	78	-1	-25	1	42	-0.025	-1	-1	-1	-1
GLBH1	13/01/2021	-0.1	229	4.2	25	9	-100	1	8	53	274	-1	-25	-10	81	-1	-25	-1	-25	-1	1	0.032	-1	-1	-1	-1
HBH1	14/01/2021	-0.1	8	2.3	42	30	410	-1	-1	-25	-25	-1	-25	-10	714	1	78	-1	-25	-1	-1	-0.025	-1	-1	-1	-1
HOBH1A	13/01/2021	-0.1	88	6.3	77	47	-100	-1	-1	135	77	-1	-25	-10	-25	-1	129	-1	-25	-1	11	-0.025	-1	-1	-1	-1
HPBH1	22/01/2021	-0.1	23	3.1	111	81	-100	-1	-1	40	34	-1	-25	-10	-25	-1	-25	-1	-25	-1	1	-0.025	-1	-1	-1	-1
HPBH3	22/01/2021	0.2	8	6.5	98	82	279	-1	-1	-25	-25	-1	-25	-10	796	-1	137	-1	-25	-1	1	-0.025	-1	-1	-1	-1
IMBH1	22/01/2021	0.1	131	8.3	88	48	-100	-1	-1	313	121	-1	-25	-10	123	-1	-25	-1	-25	-1	7	0.094	-1	-1	-1	-1
LBBH3	14/01/2021	-0.1	11	3.4	76	46	-100	-1	-1	-25	-25	-1	-25	-10	-25	-1	-25	-1	-25	-1	7	-0.025	-1	-1	-1	-1
MBBH3	14/01/2021	-0.1	73	6.9	82	86	104	-1	-1	28	53	-1	-25	-10	-25	-1	-25	-1	-25	-1	4	-0.025	-1	-1	-1	-1
MBH09	22/01/2021	0.3	892	55	132	182	278	-1	-1	156	670	-1	-25	70	636	1	464	-1	-25	1	54	-0.025	-1	-1	-1	-1
MLBH1	13/01/2021	-0.1	155	9.2	109	99	226	1	-1	493	168	-1	-25	-10	253	1	-25	-1	-25	-1	24	0.134	-1	-1	-1	-1
MSBH2	13/01/2021	-0.1	60	6.6	28	22	-100	-1	-1	461	-25	-1	-25	-10	-25	1	-25	-1	-25	-1	-1	-0.025	-1	-1	-1	-1
MTLBH1	13/01/2021	-0.1	104	5	148	46	267	1	-1	591	55	-1	-25	-10	67	1	460	-1	-25	-1	7	0.294	-1	-1	-1	-1
MVBH31	14/01/2021	-0.1	23	4.3	112	78	-100	1	1	112	-25	-1	-25	380	-25	2	-25	-1	-25	-1	2	0.032	-1	-1	-1	-1
MVBH32	14/01/2021	-0.1	65	5.8	56	37	-100	1	-1	-25	41	-1	-25	-10	-25	-1	179	-1	-25	-1	1	0.038	-1	-1	-1	-1
MVBH5	14/01/2021	-0.1	5	1.1	115	75	-100	-1	-1	-25	-25	-1	-25	-10	-25	-1	-25	-1	-25	-1	-1	0.035	-1	-1	-1	-1
NPBH9	12/01/2021	-0.1	141	8.5	37	34	-100	-1	-1	218	151	-1	-25	-10	46	2	-25	-1	-25	-1	3	0.225	-1	-1	-1	-1
PEBH2	12/01/2021	-0.1	102	6.5	46	20	-100	1	-1	615	152	-1	-25	-10	47	-1	-25	-1	-25	-1	-1	-0.025	-1	-1	-1	-1
RBH2	12/01/2021	-0.1	111	10.6	35	26	-100	-1	-1	392	86	-1	-25	15	301	1	-25	-1	-25	-1	3	0.206	-1	-1	-1	-1
RFBH2	13/01/2021	-0.1	109	1.9	11	2	-100	-1	5	35	202	-1	-25	-10	250	-1	36	-1	-25	-1	-1	-0.025	-1	-1	-1	-1

RFBH4	13/01/2021	-0.1	131	1.5	5	1	-100	-1	24	40	255	-1	-25	-10	-25	-1	-25	-1	-25	-1	-1	-0.025	-1	-1	-1	-1
RFBH6	13/01/2021	-0.1	132	1.4	5	1	-100	1	20	36	256	-1	-25	-10	-25	-1	-25	-1	-25	1	1	-0.025	-1	-1	-1	-1
RPBH1	12/01/2021	-0.1	9	2.7	3	2	102	-1	-1	110	-25	-1	-25	-10	4514	1	93	-1	-25	-1	-1	-0.025	-1	-1	-1	-1
RPBH2	12/01/2021	0.1	19	7.4	11	5	229	-1	-1	185	-25	-1	-25	-10	42192	2	677	-1	27	-1	-1	-0.025	-1	-1	-1	-1
RPBH3	12/01/2021	-0.1	8	1.9	2	1	-100	-1	-1	97	-25	-1	-25	-10	46	-1	-25	-1	-25	-1	-1	-0.025	-1	-1	-1	-1
WBR50	22/01/2021	0.2	415	29	122	90	212	-1	1	33	661	-1	-25	70	877	2	443	-1	-25	-1	1	-0.025	-1	-1	-1	-1
WKBH1	14/01/2021	-0.1	177	2.3	25	7	-100	-1	5	-25	277	-1	-25	-10	35	-1	-25	-1	-25	-1	2	-0.025	-1	-1	-1	-1
WKBH3	14/01/2021	0.8	34	3.7	29	34	121	1	2	61	-25	-1	-25	-10	1548	2	246	-1	-25	-1	2	-0.025	-1	-1	-1	-1
WVBH1	13/01/2021	-0.1	21	5.9	42	17	-100	-1	-1	34	-25	-1	-25	-10	-25	1	111	-1	-25	1	1	-0.025	-1	-1	-1	-1
WVBH1C	13/01/2021	-0.1	138	2.9	3	-1	153	1	21	55	229	-1	-25	-10	1293	-1	-25	-1	-25	-1	-1	-0.025	-1	-1	-1	-1
WVBH2	11/01/2021	-0.1	136	2	3	-1	-100	1	22	35	229	-1	-25	-10	-25	-1	-25	-1	-25	-1	-1	-0.025	-1	-1	-1	-1
WVBH2A	13/01/2021	0.1	127	7	352	230	499	-1	-1	240	65	-1	-25	-10	2112	2	97	-1	-25	-1	4	4.81	-1	-1	-1	-1
ZFBH1	13/01/2021	-0.1	354	42	78	87	186	-1	1	259	225	-1	-25	-10	125	1	36	-1	-25	-1	12	-0.025	-1	-1	-1	-1
ZFBH3	13/01/2021	-0.1	89	9.6	17	15	-100	-1	-1	607	45	-1	-25	-10	384	1	-25	-1	-25	-1	1	1.59	-1	-1	-1	-1
ZNBH1	12/01/2021	-0.1	107	2.6	14	13	220	-1	-1	453	34	-1	-25	-10	331	1	-25	-1	-25	-1	-1	0.027	-1	-1	-1	-1
ZNBH3	12/01/2021	1.1	192	23	55	39	-100	1	1	224	232	-1	-25	-10	32	-1	-25	-1	-25	1	10	-0.025	-1	-1	-1	-1
ZSBH3	14/01/2021	-0.1	12	3.8	88	64	-100	-1	-1	117	36	-1	-25	-10	-25	-1	-25	-1	-25	-1	1	-0.025	-1	-1	-1	-1
NPBH10	26/02/2021	0.2	76	42	5	20	215	1	-1	960	27	-1	-25	-10	143	1	349	-1	116	-1	-1	1.57	0	0	0	0
MVBH2	25/02/2021	-0.1	27	2	86	56	-100	-1	1	-25	26	-1	-25	-10	-25	1	-25	-1	-25	-1	-1	0.028	0	0	0	0

Maximum Value	Drinking Health					DKBH1	HLBH1	HKBH4	HOBH1B	HOBH1C	MVBH17	PABH3	RBH1A	RVBH4	WVBH1B	BCBH2	BCBH4	BPBH1	DKBH2	DKBH4	RFBH2	GLBH1	HBH1	HOBH1A	HPBH1	HPBH3	IMBH1	LBBH3	MBBH3	NPBH10
Class 4																														
Class 3																														
Class 2																														
Class 1																														
Class 0																														
pH	5-9.5	4.5-5 & 9.5-10	4-4.5 & 10-10.5	3-4 &10.5-11	<3 & >11	7.50	8.10	7.80	7.20	7.50	7.40	7.60	7.30	7.60	7.90	7.90	7.40	7.20	8.10	7	7.90	8.40	7.20	7.20	7	7.10	7.50	7	7.50	7.50
EC mS/m	<70	70-150	150-370	370-520	>520	90.20	330	106	120	110	152	155	102	122	904	128	112	131	58.40	141	63.10	144	48.60	111	112	100	142	74.50	123	79.30
TDS mg/l	<450	450-1000	1000-2400	2400-3400	>3400	572	2534	618	760	724	1194	1002	612	792	5904	870	742	820	412	812	394	814	302	692	776	676	1028	470	788	532
Turbidity NTU	<0.1	0.1-1	1-20	20-50	>50	0.30	12	1.30	0.20	0.10	1.40	7.50	15	0.30	6.10	8.20	1.90	0.80	0.20	0.20	1.10	7.80	144	0.20	0.60	73	1.40	0.20	3.30	22
Cl mg/l	<100	100-200	200-600	600-1200	>1200	33	684	188	153	74	209	231	198	102	2178	91	57	144	41	193	69	286	10	129	30	12	186	16	52	144
SO_4 mg/l	<200	200-400	400-600	600-1000	>1000	6	382	20	9	52	70	13	10	13	1251	21	12	7	22	13	47	175	10	30	15	7	24	7	14	33
F mg/l	<0.7	0.7-1	1-1.5	1.5-3.5	>3.5	0.60	5	1.60	0.90	0.50	0.70	0.50	0.20	1	11	0.70	0.70	0.70	2	2.20	3.60	8.40	-0.20	1.40	0.20	-0.20	0.80	0.20	0.20	0.30
NO_3-N mg/l	<26	26-44	44-89	89-177	>177	13	4.10	5.60	3.30	4.30	15	6	2.20	30	1.70	18	7.60	2.90	0.40	5.80	0.80	0.50	0.20	3.30	2.40	0.60	4.90	1.60	2.50	29
Combined NO_3 and NO_2 mg/l	<6	6-10	10-20	20-40	>40	1.20	0.40	0.50	0.30	0.40	1.40	0.50	0.20	2.80	0.10	1.70	0.70	0.30	-0.10	0.50	0.10	0.10	-0.10	0.30	0.20	-0.10	0.50	0.10	0.20	2.80
Na mg/l	<100	100-200	200-400	400-1000	>1000	39	384	102	76	46	29	85	83	92	1905	66	62	65	79	104	109	239	9	90	23	8	131	12	75	76
K mg/l	<25	25-50	50-100	100-500	>500	4.20	18.10	9.70	10.60	1.30	8.20	7.60	8.90	6.20	18.90	8.50	7.40	5.90	1.10	2.50	1.90	11.30	2.40	6.30	3.10	6.50	8.30	5.60	7.80	42
Ca mg/l	0-80	80-150	150-300	>300		87	167	77	81	95	353.35	100	53	92	111	71	67	114	33	125	20	31	49	81	111	98	98	79	82	12
Mg mg/l	<70	70-100	100-200	200-400	>400	49	116	28	63	69	397.13	86	41	45	69	91	78	81	12	45	9	12	32	47	81	82	52	47	88	20
As mg/l	<0.01	0.01-0.05	0.05-0.2	0.2-2	>2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03	0	0.01	0.01	0	0	0	0	0	0	0	0
Cd mg/l	<03	03-05	05-0.02	0.02-0.05	>0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Maximum Value	Drinking Health					DKBH1	HLBH1	HKBH4	HOBH1B	HOBH1C	MVBH17	PABH3	RBH1A	RVBH4	WVBH1B	BCBH2	BCBH4	BPBH1	DKBH2	DKBH4	RFBH2	GLBH1	HBH1	HOBH1A	HPBH1	HPBH3	IMBH1	LBBH3	MBBH3	NPBH10
Class 4																														
Class 3																														
Class 2																														
Class 1																														
Class 0																														
Cu mg/l	0-1	1-1.3	1.3-2	2-15	>15	0.02	0.13	0.02	0.03	0.02	0.02	-0.01	0.04	0.02	0.05	0.22	-0.01	0.06	-0.01	-0.01	-0.01	0.02	-0.01	0.02	-0.01	-0.01	0.04	-0.01	0.01	0.03
Fe mg/l	<0.5	0.5-1	1-5	5-10	>10	-0.03	1.57	0.32	-0.03	-0.03	0.08	0.47	0.22	-0.03	0.77	0.50	0.05	0	0	-0.03	0.25	0.64	0.71	0	-0.03	1.36	0.15	-0.03	0.70	0.34
Mn mg/l	<0.1	0.1-0.4	0.4-4	4-10	>10	-0.03	0.17	0.12	0.22	-0.03	0	-0.03	0.18	-0.03	4.94	-0.03	-0.03	-0.03	-0.03	0.08	0.04	-0.03	0.20	0.13	-0.03	0.19	-0.03	-0.03	-0.03	0.61
Zn mg/l	<3	3-5	5-10	10-20	>20	0.23	0.03	-0.03	-0.03	-0.03	0.03	-0.03	0.05	-0.03	0.26	0.13	-0.03	0.08	-0.03	-0.03	-0.03	0.21	-0.03	-0.03	-0.03	-0.03	0.10	-0.03	-0.03	1.57
Total Coliform Bacteria (count /100ml)	0	0-10	10-100	100-1000	>1000	3600	390	2400	1000	58	470	1000	1700	110	6600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Hardness	0-200	200-300	300-600	>600		N/A	N/A	N/A	N/A	N/A	750.48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Maximum Value	Drinking Health					MBH09	MLBH1	MSBH2	MTLBH1	MVBH5	MVBH2	MVBH31	MVBH32	NPBH9	PEBH2	RBH2	RFBH4	RFBH6	RPBH1	RPBH2	RPBH3	WBR50	WKBH1	WKBH3	WVBH1	WVBH1C	WVBH2	WVBH2A	ZFBH1	ZFBH3	ZNBH1	ZNBH3	ZSBH3
Class 4																																	
Class 3																																	
Class 2																																	
Class 1																																	
Class 0																																	
pH	5-9.5	4.5-5 & 9.5-10	4-4.5 & 10-10.5	3-4 &10.5-11	<3 & >11	6.90	7.30	6.30	7.10	7	7.70	7.10	7.60	7.20	7.20	7.30	8.40	9	6.10	6.90	5.60	7.10	8.30	6.90	6.70	9.20	9.20	7.40	7.50	7.50	6.70	7.60	7.10
EC mS/m	<70	70-150	150-370	370-520	>520	663	193	72.50	172	116.70	89.10	202	132	115	104	93.70	68.30	70.20	23.10	59.50	8.40	336	118	119	45.70	68.30	68.30	410	279	74	75.70	155	86.60
TDS mg/l	<450	450 - 1000	1000-2400	2400 - 3400	>3400	4542	1306	586	1558	759	588.00	1264	792	738	580	654	442	440	132	350	64	2412	702	800	290	462	454	3398	1794	562	604	948	532
Turbidity NTU	<0.1	0.1-1	1-20	20-50	>50	49	3.20	2.30	1	0.20	0.60	0.40	1	0.70	2.20	12	0.20	0.80	57	415	6.90	104	2.20	24	0.20	12	0.40	30	0.30	6.30	44	9.30	1.20
Cl mg/l	<100	100 - 200	200-600	600-1200	>1200	1920	343	182	450	20	53.00	279	231	236	203	124	81	86	30	79	19	827	190	215	41	84	91	704	564	145	174	326	11
SO_4 mg/l	<200	200 - 400	400-600	600-1000	>1000	129	16	4	9	17	38.00	133	88	22	15	16	91	90	11	41	2	351	144	27	5	102	89	208	68	9	38	35	4
F mg/l	<0.7	0.7-1	1-1.5	1.5-3.5	>3.5	6.30	1.30	- 0.20	1.40	0.12	0.30	0.20	0.40	0.60	1.10	0.80	16	16	- 0.20	0.20	- 0.20	3.40	9.90	7.60	0.40	17	17	6.20	1.70	0.30	0.40	0.60	0.30
NO_3-N mg/l	<26	26-44	44-89	89-177	>177	3.90	2	9.90	0.20	4	1.98	18	2	8.10	1.20	27	0.40	2.70	1.30	3.70	2.40	0.60	0.30	0.30	2.90	0.40	0.70	150	43	16	17	11	1.90
Combined NO_3 and NO_2 mg/l	<6	6-10	10-20	20-40	>40	0.40	0.20	0.90	- 0.10	0.40	0.20	1.60	0.20	0.70	0.10	2.40	- 0.10	0.20	0.10	0.40	0.20	- 0.10	- 0.10	- 0.10	0.30	- 0.10	0.10	13.80	3.90	1.50	1.60	2.80	0.20
Na mg/l	<100	100 - 200	200-400	400-1000	>1000	931	155	61	104	6	29.25	44	71	147	119	115	133	138	25	110	8	443	182	65	23	138	140	127	380	95	107	195	12

Maximum Value	Drinking Health					MBH09	MLBH1	MSBH2	MTLBH1	MVBH5	MVBH2	MVBH31	MVBH32	NPBH9	PEBH2	RBH2	RFBH4	RFBH6	RPBH1	RPBH2	RPBH3	WBR50	WKBH1	WKBH3	WVBH1	WVBH1C	WVBH2	WVBH2A	ZFBH1	ZFBH3	ZNBH1	ZNBH3	ZSBH3
Class 4																																	
Class 3																																	
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Class 0																																	
K mg/l	<25	25-50	50-100	100-500	>500	61	9.20	6.60	5	2.90	3.20	5.20	6.20	8.80	8.40	10.70	1.50	1.40	6	8.20	2.10	33	2.80	5.10	5.90	2.90	2.20	7	43	9.60	3.40	23	3.80
Ca mg/l	0-80	80-150	150-300	>300		149	109	29	153	302.30	226.35	177	113	39	51	35	6	5	9	11	2	141	62	69	47	4	4	352	79	18	16	55	92
Mg mg/l	<70	70-100	100-200	200-400	>400	191	99	23	48	303.65	228.41	138	78	36	22	26	1	1	6	5	2	95	53	77	19	-1	-1	230	87	16	15	39	66
As mg/l	<0.01	0.01-0.05	0.05-0.2	0.2-2	>2	0	0	0	0	0	0.00	0	0	0	0	0	0.03	0.02	0	0	0	0.01	0.01	0	0	0.03	0.03	0	0	0	0	0	0
Cd mg/l	<03	03-05	05-0.02	0.02-0.05	>0.05	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cu mg/l	0-1	1-1.3	1.3-2	2-15	>15	0.18	-0.01	0.04	-0.01	0	0.00	0.38	-0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.03	-0.01	0.10	-0.01	-0.01	0.02	0.02	0.02	-0.01	0.10	-0.01	0.02	0.02	-0.01
Fe mg/l	<0.5	0.5-1	1-5	5-10	>10	0.64	0.66	1.13	0.07	0	0.00	0	0	0.05	0.19	1.28	0	0.13	5.10	42.19	0.70	2.27	0.05	1.55	0	1.29	0	2.11	0.13	0.45	0.33	0.03	-0.03
Mn mg/l	<0.1	0.1-0.4	0.4-4	4-10	>10	0.46	-0.03	-0.03	0.46	0	0.00	-0.03	0.20	-0.03	0.06	-0.03	0.05	-0.03	0.16	0.68	0.03	0.49	-0.03	0.25	0.12	-0.03	-0.03	0.10	0.05	-0.03	0.04	-0.03	-0.03
Zn mg/l	<3	3-5	5-10	10-20	>20	-0.03	0.13	0.18	0.29	0.04	0.07	0.03	0.06	0.39	0.17	1.33	-0.03	-0.03	0.26	-0.03	-0.03	-0.03	-0.03	-0.03	0.04	-0.03	-0.03	4.81	-0.03	6.67	0.04	-0.03	-0.03
Total Coliform Bacteria (count /100ml)	0	0-10	10-100	100-1000	>1000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Maximum Value	Drinking Health					MBH09	MLBH1	MSBH2	MTLBH1	MVBH5	MVBH2	MVBH31	MVBH32	NPBH9	PEBH2	RBH2	RFBH4	RFBH6	RPBH1	RPBH2	RPBH3	WBR50	WKBH1	WKBH3	WVBH1	WVBH1C	WVBH2	WVBH2A	ZFBH1	ZFBH3	ZNBH1	ZNBH3	ZSBH3
Class 4																																	
Class 3																																	
Class 2																																	
Class 1																																	
Class 0																																	
Total Hardness	0-200	200-300	300-600	>600		N/A	N/A	N/A	N/A	605.95	454.76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix D: Laboratory Certificates

WATERLAB (Pty) Ltd

Reg. No.: 1983/009165/07 V.A.T. No.: 4130107891

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T0391

CERTIFICATE OF ANALYSES

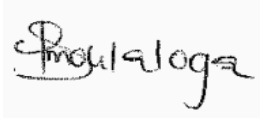
GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-28
Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MVBH17	PABH3
Sample Number						116037	116038
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.0	7.2
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	152	155
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	930	902
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	1.4↓	0.3
Free Residual Chlorine as Cl_2	N	---	WLAB036	Chronic health	≤5	<0.1	<0.1
Monochloramine	N	---	WLAB036	Chronic health	≤3	<0.1	<0.1
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	440	520
Langelier Index at 25°C	A	---	WLAB053	---	---	0.2	0.3
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	209	230
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	48	13
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.7	0.4
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	12↓	4.5
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	1.1↓	0.4
Silica as SiO_2	N	---	WLAB046	---	---	17.8	53
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Free Cyanide as CN (µg/ℓ)	N	---	WLAB056	Acute health	≤200	<10	<10
Phenols (µg/ℓ)	N	---	WLAB041	Aesthetic	≤10	<10	<10
Microcystin as LR (µg/ℓ)	N	---	WLAB071	Chronic health	≤1	<0.15	<0.15
Chloroform as $CHCl_3$ (µg/ℓ)	S	---	---	Chronic health	≤300	<5	<5
Bromoform as $CHBr_3$ (µg/ℓ)	S	---	---	Chronic health	≤100	<5	<5
Dibromochloromethane as $CHBr_2Cl$ (µg/ℓ)	S	---	---	Chronic health	≤100	<2	<2
Bromodichloromethane as $CHBrCl_2$ (µg/ℓ)	S	---	---	Chronic health	≤60	<10	<10
Combined Trihalomethanes	N	---	WLAB059	Chronic health	≤1	<0.10	<0.10
Total Colifom Bacteria / (100 mℓ)	A	6.1	WLAB021	Operational	≤10	470↓	66↓
E. coli / (100 mℓ)	A	5.0	WLAB021	Acute health	Not detected	0	0

E. Nkabinde - Chemical Technical Signatory



D.O. Mohlaloga - Microbiological Technical Signatory

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Sample condition acceptable unless specified on the report.

Bacteriological parameters analysed on: 2021-01-12

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T0391

CERTIFICATE OF ANALYSES

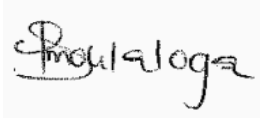
GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-28
Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MVBH17	PABH3
Sample Number						116037	116038
Date/Time Sampled						N/A	N/A
Heterotrophic Plate Count / (1 mℓ)	A	4.5	WLAB021	Operational	≤1 000	1600↓	180
Somatic Coliphages / (10 mℓ)	N	---	WLAB073	---	---	1	0
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	25	83
Potassium as K	A	7.9	WLAB015	---	---	8.2	7.6
Calcium as Ca	A	9.5	WLAB015	---	---	133	98
Magnesium as Mg	A	9.5	WLAB015	---	---	93	86
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	1	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	<25	182
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	28	123
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	75	26
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	2	1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	1	38↓
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	0.027	<0.025
% Balancing	N	---	---	---	---	96.9	94.8

E. Nkabinde - Chemical Technical Signatory



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Bacteriological parameters analysed on: 2021-01-12

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CERTIFICATE OF ANALYSES

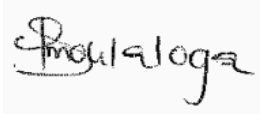
GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-28
Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						DKBH1	WVBH1B
Sample Number						116039	116040
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.2	7.7
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	90.2	904↓
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	572	5904↓
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	18↓
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.2	6.1↓
Free Residual Chlorine as Cl_2	N	---	WLAB036	Chronic health	≤5	<0.1	1.0
Monochloramine	N	---	WLAB036	Chronic health	≤3	<0.1	0.5
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	464	688
Langelier Index at 25°C	A	---	WLAB053	---	---	0.2	0.9
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	33	2178↓
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	6	1208↓
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.5	9.8↓
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	4.8	1.7
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.4	0.1
Silica as SiO_2	N	---	WLAB046	---	---	53	13.1
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	1.9
Free Cyanide as CN (µg/ℓ)	N	---	WLAB056	Acute health	≤200	<10	<10
Phenols (µg/ℓ)	N	---	WLAB041	Aesthetic	≤10	<10	<10
Microcystin as LR (µg/ℓ)	N	---	WLAB071	Chronic health	≤1	<0.15	<0.15
Chloroform as $CHCl_3$ (µg/ℓ)	S	---	---	Chronic health	≤300	<5	<5
Bromoform as $CHBr_3$ (µg/ℓ)	S	---	---	Chronic health	≤100	<5	<5
Dibromochloromethane as $CHBr_2Cl$ (µg/ℓ)	S	---	---	Chronic health	≤100	<2	<2
Bromodichloromethane as $CHBrCl_2$ (µg/ℓ)	S	---	---	Chronic health	≤60	<10	<10
Combined Trihalomethanes	N	---	WLAB059	Chronic health	≤1	<0.10	<0.10
Total Colifom Bacteria / (100 mℓ)	A	6.1	WLAB021	Operational	≤10	60↓	6600↓
E. coli / (100 mℓ)	A	5.0	WLAB021	Acute health	Not detected	11↓	0

E. Nkabinde - Chemical Technical Signatory



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Bacteriological parameters analysed on: 2021-01-12

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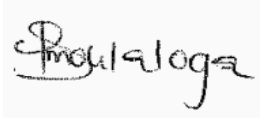
Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						DKBH1	WVBH1B
Sample Number						116039	116040
Date/Time Sampled						N/A	N/A
Heterotrophic Plate Count / (1 mℓ)	A	4.5	WLAB021	Operational	≤1 000	1300↓	1700↓
Somatic Coliphages / (10 mℓ)	N	---	WLAB073	---	---	0	0
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	39	1869↓
Potassium as K	A	7.9	WLAB015	---	---	4.2	9.2
Calcium as Ca	A	9.5	WLAB015	---	---	87	110
Magnesium as Mg	A	9.5	WLAB015	---	---	49	67
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	116
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	1	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	1	3
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	96	222
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	54	927
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	10	51
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	770↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1	5
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	4941↓
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	4	48↓
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	0.230	0.261
% Balancing	N	---	---	---	---	97.5	95.6

E. Nkabinde - Chemical Technical Signatory



D.O. Mohlaloga - Microbiological Technical Signatory

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Bacteriological parameters analysed on: 2021-01-12

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-28
Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						HOBH1C	HOBH1B
Sample Number						116041	116042
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.1	7.0
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	110	120
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	706	710
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.1	0.2
Free Residual Chlorine as Cl_2	N	---	WLAB036	Chronic health	≤5	<0.1	<0.1
Monochloramine	N	---	WLAB036	Chronic health	≤3	<0.1	<0.1
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	492	472
Langelier Index at 25°C	A	---	WLAB053	---	---	0.2	0.0
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	72	149
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	39	9
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.5	0.8
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	4.0	2.4
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.3	0.2
Silica as SiO_2	N	---	WLAB046	---	---	72	38
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	1.0	<1.0
Free Cyanide as CN (µg/ℓ)	N	---	WLAB056	Acute health	≤200	<10	<10
Phenols (µg/ℓ)	N	---	WLAB041	Aesthetic	≤10	<10	<10
Microcystin as LR (µg/ℓ)	N	---	WLAB071	Chronic health	≤1	<0.15	<0.15
Chloroform as $CHCl_3$ (µg/ℓ)	S	---	---	Chronic health	≤300	<5	<5
Bromoform as $CHBr_3$ (µg/ℓ)	S	---	---	Chronic health	≤100	<5	<5
Dibromochloromethane as $CHBr_2Cl$ (µg/ℓ)	S	---	---	Chronic health	≤100	<2	<2
Bromodichloromethane as $CHBrCl_2$ (µg/ℓ)	S	---	---	Chronic health	≤60	<10	<10
Combined Trihalomethanes	N	---	WLAB059	Chronic health	≤1	<0.10	<0.10
Total Colifom Bacteria / (100 mℓ)	A	6.1	WLAB021	Operational	≤10	0	1000↓
E. coli / (100 mℓ)	A	5.0	WLAB021	Acute health	Not detected	0	0

E. Nkabinde - Chemical Technical Signatory

D.O. Mohlaloga - Microbiological Technical Signatory

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Bacteriological parameters analysed on: 2021-01-12

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CERTIFICATE OF ANALYSES

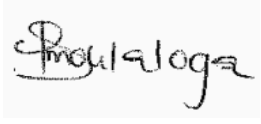
GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-28
Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						HOBH1C	HOBH1B
Sample Number						116041	116042
Date/Time Sampled						N/A	N/A
Heterotrophic Plate Count / (1 mℓ)	A	4.5	WLAB021	Operational	≤1 000	<10	2500↓
Somatic Coliphages / (10 mℓ)	N	---	WLAB073	---	---	0	0
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	46	76
Potassium as K	A	7.9	WLAB015	---	---	1.0	9.4
Calcium as Ca	A	9.5	WLAB015	---	---	92	80
Magnesium as Mg	A	9.5	WLAB015	---	---	67	63
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	119	159
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	51	120
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	163↓
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	9	12
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	96.6	95.1

E. Nkabinde - Chemical Technical Signatory



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Bacteriological parameters analysed on: 2021-01-12

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-28
Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						RVBH4	RBH1A
Sample Number						116043	116044
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.4	7.1
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	122	102
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	768	612
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.1	15↓
Free Residual Chlorine as Cl_2	N	---	WLAB036	Chronic health	≤5	<0.1	1.5
Monochloramine	N	---	WLAB036	Chronic health	≤3	<0.1	0.5
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	420	264
Langelier Index at 25°C	A	---	WLAB053	---	---	0.4	-0.3
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	102	187
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	13	9
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.8	0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	24↓	2.0
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	2.2↓	0.2
Silica as SiO_2	N	---	WLAB046	---	---	64	56
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Free Cyanide as CN (µg/ℓ)	N	---	WLAB056	Acute health	≤200	<10	<10
Phenols (µg/ℓ)	N	---	WLAB041	Aesthetic	≤10	<10	<10
Microcystin as LR (µg/ℓ)	N	---	WLAB071	Chronic health	≤1	<0.15	<0.15
Chloroform as $CHCl_3$ (µg/ℓ)	S	---	---	Chronic health	≤300	8	<5
Bromoform as $CHBr_3$ (µg/ℓ)	S	---	---	Chronic health	≤100	<5	<5
Dibromochloromethane as $CHBr_2Cl$ (µg/ℓ)	S	---	---	Chronic health	≤100	<2	<2
Bromodichloromethane as $CHBrCl_2$ (µg/ℓ)	S	---	---	Chronic health	≤60	<10	<10
Combined Trihalomethanes	N	---	WLAB059	Chronic health	≤1	<0.10	<0.10
Total Colifom Bacteria / (100 mℓ)	A	6.1	WLAB021	Operational	≤10	110↓	1400↓
E. coli / (100 mℓ)	A	5.0	WLAB021	Acute health	Not detected	17↓	0

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D.O. Mohlaloga - Microbiological Technical Signatory

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Bacteriological parameters analysed on: 2021-01-12

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-28
Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						RVBH4	RBH1A
Sample Number						116043	116044
Date/Time Sampled						N/A	N/A
Heterotrophic Plate Count / (1 mℓ)	A	4.5	WLAB021	Operational	≤1 000	980	1400↓
Somatic Coliphages / (10 mℓ)	N	---	WLAB073	---	---	0	0
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	92	83
Potassium as K	A	7.9	WLAB015	---	---	5.7	8.5
Calcium as Ca	A	9.5	WLAB015	---	---	92	52
Magnesium as Mg	A	9.5	WLAB015	---	---	45	41
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	109
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	737↓	409
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	172	73
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	38
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	195
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	2
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	179↓
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	4	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	6	4
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	0.050
% Balancing	N	---	---	---	---	96.7	94.7

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Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

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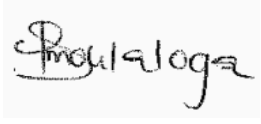
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						HKBH4
Sample Number						116045
Date/Time Sampled						N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.5
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	102
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	618
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.2
Free Residual Chlorine as Cl_2	N	---	WLAB036	Chronic health	≤5	<0.1
Monochloramine	N	---	WLAB036	Chronic health	≤3	<0.1
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	292
Langelier Index at 25°C	A	---	WLAB053	---	---	0.2
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	157
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	20
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.8
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	5.6
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.5
Silica as SiO_2	N	---	WLAB046	---	---	19.3
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0
Free Cyanide as CN (µg/ℓ)	N	---	WLAB056	Acute health	≤200	<10
Phenols (µg/ℓ)	N	---	WLAB041	Aesthetic	≤10	<10
Microcystin as LR (µg/ℓ)	N	---	WLAB071	Chronic health	≤1	<0.15
Chloroform as $CHCl_3$ (µg/ℓ)	S	---	---	Chronic health	≤300	<5
Bromoform as $CHBr_3$ (µg/ℓ)	S	---	---	Chronic health	≤100	<5
Dibromochloromethane as $CHBr_2Cl$ (µg/ℓ)	S	---	---	Chronic health	≤100	<2
Bromodichloromethane as $CHBrCl_2$ (µg/ℓ)	S	---	---	Chronic health	≤60	<10
Combined Trihalomethanes	N	---	WLAB059	Chronic health	≤1	<0.10
Total Colifom Bacteria / (100 mℓ)	A	6.1	WLAB021	Operational	≤10	290↓
E. coli / (100 mℓ)	A	5.0	WLAB021	Acute health	Not detected	84↓

E. Nkabinde - Chemical Technical Signatory



D.O. Mohlaloga - Microbiological Technical Signatory

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Sample condition acceptable unless specified on the report.

Bacteriological parameters analysed on: 2021-01-12

WATERLAB (Pty) Ltd

Reg. No.: 1983/009165/07 V.A.T. No.: 4130107891

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CERTIFICATE OF ANALYSES

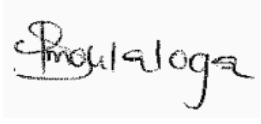
GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-28
Project number: 1000 **Report number:** 97225 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						HKBH4
Sample Number						116045
Date/Time Sampled						N/A
Heterotrophic Plate Count / (1 mℓ)	A	4.5	WLAB021	Operational	≤1 000	350
Somatic Coliphages / (10 mℓ)	N	---	WLAB073	---	---	2
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	87
Potassium as K	A	7.9	WLAB015	---	---	7.6
Calcium as Ca	A	9.5	WLAB015	---	---	74
Magnesium as Mg	A	9.5	WLAB015	---	---	28
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	686
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	165
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	2
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025
% Balancing	N	---	---	---	---	94.6

E. Nkabinde - Chemical Technical Signatory



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Bacteriological parameters analysed on: 2021-01-12

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-26
Project number: 1000 **Report number:** 97226 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						DKBH2	DKBH4
Sample Number						116046	116047
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.8	6.9
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	58.4	141
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	362	812
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.2	0.1
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	244	500
Langelier Index at 25°C	A	---	WLAB053	---	---	0.1	0.1
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	37	193
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	22	13
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	2.0↓	2.2↓
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	0.4	5.5
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	<0.1	0.5
Silica as SiO_2	N	---	WLAB046	---	---	27	37
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	79	104
Potassium as K	A	7.9	WLAB015	---	---	1.1	2.2
Calcium as Ca	A	9.5	WLAB015	---	---	32	125
Magnesium as Mg	A	9.5	WLAB015	---	---	12	45
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	15↓	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	69	525
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	469	87
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-26
Project number: 1000 **Report number:** 97226 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						DKBH2	DKBH4
Sample Number						116046	116047
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	6
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	78
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	4	42↓
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	96.3	94.5

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GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-12 **Date completed:** 2021-01-26
Project number: 1000 **Report number:** 97226 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						WVBH2
Sample Number						116048
Date/Time Sampled						N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	9.2
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	68.2
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	434
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.4
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	100
Langelier Index at 25°C	A	---	WLAB053	---	---	0.2
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	82
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	49
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	1.3
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	0.3
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	<0.1
Silica as SiO_2	N	---	WLAB046	---	---	45
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	136
Potassium as K	A	7.9	WLAB015	---	---	2.0
Calcium as Ca	A	9.5	WLAB015	---	---	3
Magnesium as Mg	A	9.5	WLAB015	---	---	<1
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	22↓
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	35
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	229
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1

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Date received: 2021-01-12 **Date completed:** 2021-01-26
Project number: 1000 **Report number:** 97226 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. Andre Van Coller
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** andre.van.coller@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:** 076 076 9443

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						WVBH2
Sample Number						116048
Date/Time Sampled						N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	<1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025
% Balancing	N	---	---	---	---	94.0

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-18 **Date completed:** 2021-02-03
Project number: 1000 **Report number:** 97361 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						PEBH2	ZNBH3
Sample Number						116481	116482
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.1	7.2
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	92.4	155
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	556	948
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	2
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.4	0.8
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	176	252
Langelier Index at 25°C	A	---	WLAB053	---	---	-0.6	-0.3
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	185	325↓
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	15	32
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.8	0.6
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	1.1	11
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	1.6↓
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.1	2.8↓
Silica as SiO_2	N	---	WLAB046	---	---	42	33
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	1.3
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	1.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	102	192
Potassium as K	A	7.9	WLAB015	---	---	6.5	23
Calcium as Ca	A	9.5	WLAB015	---	---	46	55
Magnesium as Mg	A	9.5	WLAB015	---	---	20	39
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	1	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	615	224
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	152	232
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-18 **Date completed:** 2021-02-03
Project number: 1000 **Report number:** 97361 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						PEBH2	ZNBH3
Sample Number						116481	116482
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	47	32
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	<1	10
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	96.5	97.7

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GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-18 **Date completed:** 2021-02-03
Project number: 1000 **Report number:** 97361 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						ZNBH1	RPBH3
Sample Number						116483	116484
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	6.2	5.1
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	75.7	8.0
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	604	64
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	54↓	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	44↓	6.8↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	32	<5
Langelier Index at 25°C	A	---	WLAB053	---	---	-2.7	-5.5
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	151	16
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	38	2
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.2	<0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	17↓	2.4
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	1.6↓	0.2
Silica as SiO_2	N	---	WLAB046	---	---	103	17.2
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	7.5	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	107	8
Potassium as K	A	7.9	WLAB015	---	---	2.6	1.9
Calcium as Ca	A	9.5	WLAB015	---	---	14	2
Magnesium as Mg	A	9.5	WLAB015	---	---	13	1
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	220	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	453	97
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	34	<25
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Project number: 1000 **Report number:** 97361 **Order number:** GIB6398

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Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						ZNBH1	RPBH3
Sample Number						116483	116484
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	331↓	46
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	<1	<1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	0.027	<0.025
% Balancing	N	---	---	---	---	96.8	93.3

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						RPBH2	RPBH1
Sample Number						116485	116486
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	6.0	5.3
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	27.8	9.8
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	186	88
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	2	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	309↓	57↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	16	<5
Langelier Index at 25°C	A	---	WLAB053	---	---	-3.3	-5.2
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	18	16
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	41	11
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	<0.2	<0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	0.2	1.3
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	<0.1	0.1
Silica as SiO_2	N	---	WLAB046	---	---	23	25
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	2.3	1.9
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	19	9
Potassium as K	A	7.9	WLAB015	---	---	7.4	2.7
Calcium as Ca	A	9.5	WLAB015	---	---	11	3
Magnesium as Mg	A	9.5	WLAB015	---	---	5	2
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	229	102
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	185	110
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	<25	<25
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						RPBH2	RPBH1
Sample Number						116485	116486
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	42192↓	4514↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	2	1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	677↓	93
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	27	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	<1	<1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	92.1	99.7

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						RBH2	NPBH9
Sample Number						116487	116488
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.1	7.1
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	93.4	114
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	654	738
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	3.6↓	0.7
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	260	240
Langelier Index at 25°C	A	---	WLAB053	---	---	-0.5	-0.5
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	112	218
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	16	22
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.8	0.6
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	20↓	8.1
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	1.8↓	0.7
Silica as SiO_2	N	---	WLAB046	---	---	94	69
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	111	141
Potassium as K	A	7.9	WLAB015	---	---	10.6	8.5
Calcium as Ca	A	9.5	WLAB015	---	---	35	37
Magnesium as Mg	A	9.5	WLAB015	---	---	26	34
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	392	218
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	86	151
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						RBH2	NPBH9
Sample Number						116487	116488
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	15	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	301↓	46
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1	2
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	3	3
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	0.206	0.225
% Balancing	N	---	---	---	---	93.9	95.6

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						HOBH1A	MLBH1
Sample Number						116489	116490
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.2	7.3
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	111	193↓
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	692	1242↓
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.2	2.8↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	356	412
Langelier Index at 25°C	A	---	WLAB053	---	---	0.0	0.4
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	122	336↓
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	29	15
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	1.4	1.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	2.9	1.9
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.3	0.2
Silica as SiO_2	N	---	WLAB046	---	---	56	64
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	88	155
Potassium as K	A	7.9	WLAB015	---	---	6.3	9.2
Calcium as Ca	A	9.5	WLAB015	---	---	77	109
Magnesium as Mg	A	9.5	WLAB015	---	---	47	99
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	226
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	135	493
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	77	168
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						HOBH1A	MLBH1
Sample Number						116489	116490
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	253
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	129↓	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	11	24
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	0.134
% Balancing	N	---	---	---	---	98.9	94.0

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-18 **Date completed:** 2021-02-03
Project number: 1000 **Report number:** 97361 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MTLBH1	WVBH2A
Sample Number						116491	116492
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.1	7.3
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	164	410↓
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	1356↓	3398↓
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	7
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	1.0	30↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	224	340
Langelier Index at 25°C	A	---	WLAB053	---	---	0.0	0.7
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	428↓	704↓
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	9	208
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	1.4	2.6↓
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	0.1	150↓
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	0.1
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	<0.1	13.8↓
Silica as SiO_2	N	---	WLAB046	---	---	38	73
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	4.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	104	127
Potassium as K	A	7.9	WLAB015	---	---	5.0	7.0
Calcium as Ca	A	9.5	WLAB015	---	---	148	352
Magnesium as Mg	A	9.5	WLAB015	---	---	46	230
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	267	499↓
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	591	240
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	55	65
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MTLBH1	WVBH2A
Sample Number						116491	116492
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	67	2112↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1	2
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	460↓	97
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	7	4
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	0.294	4.81
% Balancing	N	---	---	---	---	97.0	99.6

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						WVBH1	WVBH1C
Sample Number						116493	116494
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	6.6	9.1
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	45.7	68.3
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	290	458
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	3
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.2	12↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	164	100
Langelier Index at 25°C	A	---	WLAB053	---	---	-1.1	0.0
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	41	82
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	5	81
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.4	14↓
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	2.9	0.4
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.3	<0.1
Silica as SiO_2	N	---	WLAB046	---	---	28	44
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	21	138
Potassium as K	A	7.9	WLAB015	---	---	5.9	2.9
Calcium as Ca	A	9.5	WLAB015	---	---	42	3
Magnesium as Mg	A	9.5	WLAB015	---	---	17	<1
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	153
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	21↓
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	34	55
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	<25	229
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						WVBH1	WVBH1C
Sample Number						116493	116494
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	1293↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	111↓	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	1	<1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	97.8	95.9

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						ZFBH1	ZFBH3
Sample Number						116495	116496
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.5	6.9
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	269↓	72.8
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	1794↓	562
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	7	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.3	6.3↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	440	88
Langelier Index at 25°C	A	---	WLAB053	---	---	0.4	-1.4
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	505↓	132
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	45	9
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	1.7↓	0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	43↓	15↓
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	3.9↓	1.4↓
Silica as SiO_2	N	---	WLAB046	---	---	86	99
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	2.6	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	354↓	89
Potassium as K	A	7.9	WLAB015	---	---	42	9.6
Calcium as Ca	A	9.5	WLAB015	---	---	78	17
Magnesium as Mg	A	9.5	WLAB015	---	---	87	15
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	186	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	259	607
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	225	45
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						ZFBH1	ZFBH3
Sample Number						116495	116496
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	125	384↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1	1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	36	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	12	1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	1.59
% Balancing	N	---	---	---	---	99.3	95.7

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MSBH2	RFBH2
Sample Number						116497	116498
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	5.7	7.9
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	71.0	63.1
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	586	394
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1	5
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.2	1.1↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	20	108
Langelier Index at 25°C	A	---	WLAB053	---	---	-3.1	-0.6
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	181	69
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	4	47
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	<0.2	<0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	9.9	0.8
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.9	0.1
Silica as SiO_2	N	---	WLAB046	---	---	26	17.8
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	60	109
Potassium as K	A	7.9	WLAB015	---	---	6.6	1.9
Calcium as Ca	A	9.5	WLAB015	---	---	28	11
Magnesium as Mg	A	9.5	WLAB015	---	---	22	2
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	5
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	461	35
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	<25	202
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-18 **Date completed:** 2021-02-03
Project number: 1000 **Report number:** 97361 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MSBH2	RFBH2
Sample Number						116497	116498
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	250
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	36
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	<1	<1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	97.4	96.6

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						RFBH4	RFBH6
Sample Number						116499	116500
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	8.2	8.8
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	68.3	69.9
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	434	440
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.2	0.2
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	96	96
Langelier Index at 25°C	A	---	WLAB053	---	---	-0.6	-0.1
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	81	82
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	83	83
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	11↓	14↓
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	0.4	2.7
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	<0.1	0.2
Silica as SiO_2	N	---	WLAB046	---	---	24	23
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	131	132
Potassium as K	A	7.9	WLAB015	---	---	1.5	1.4
Calcium as Ca	A	9.5	WLAB015	---	---	5	5
Magnesium as Mg	A	9.5	WLAB015	---	---	1	1
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	24↓	20↓
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	40	36
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	255	256
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						RFBH4	RFBH6
Sample Number						116499	116500
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	<1	1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	96.3	94.0

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						GLBH1	WKBH3
Sample Number						116501	116502
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	8.1	6.6
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	137	59.6
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	784	378
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1	7
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	1.5↓	24↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	80	196
Langelier Index at 25°C	A	---	WLAB053	---	---	-0.1	-1.2
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	262	77
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	159	13
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	7.7↓	7.6↓
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	0.2	0.2
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	<0.1	<0.1
Silica as SiO_2	N	---	WLAB046	---	---	15.8	29
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	3.1
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	0.8
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	229↓	34
Potassium as K	A	7.9	WLAB015	---	---	4.2	3.7
Calcium as Ca	A	9.5	WLAB015	---	---	25	29
Magnesium as Mg	A	9.5	WLAB015	---	---	9	34
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	121
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	1	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	8	2
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	53	61
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	274	<25
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						GLBH1	WKBH3
Sample Number						116501	116502
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	81	1548↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	2
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	246↓
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	1	2
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	0.032	<0.025
% Balancing	N	---	---	---	---	97.3	92.9

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						WKBH1	LBBH3
Sample Number						116503	116504
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.6	7.0
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	105	72.3
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	634	372
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.6	0.1
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	88	316
Langelier Index at 25°C	A	---	WLAB053	---	---	-0.7	-0.1
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	170	12
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	144	6
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	8.4↓	0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	0.3	1.4
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	<0.1	0.1
Silica as SiO_2	N	---	WLAB046	---	---	37	38
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	177	11
Potassium as K	A	7.9	WLAB015	---	---	2.3	3.4
Calcium as Ca	A	9.5	WLAB015	---	---	25	76
Magnesium as Mg	A	9.5	WLAB015	---	---	7	46
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	5	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	<25	<25
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	277	<25
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						WKBH1	LBBH3
Sample Number						116503	116504
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	35	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	2	7
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	97.8	91.7

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						ZSBH3	BPBH1
Sample Number						116505	116506
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.1	7.1
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	86.6	131
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	508	820
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.1	0.3
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	356	408
Langelier Index at 25°C	A	---	WLAB053	---	---	0.0	0.2
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	11	137
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	4	7
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.3	0.6
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	1.8	2.9
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.2	0.3
Silica as SiO_2	N	---	WLAB046	---	---	41	71
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	12	61
Potassium as K	A	7.9	WLAB015	---	---	3.8	5.6
Calcium as Ca	A	9.5	WLAB015	---	---	88	112
Magnesium as Mg	A	9.5	WLAB015	---	---	64	78
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	117	886↓
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	36	70
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-18 **Date completed:** 2021-02-03
Project number: 1000 **Report number:** 97361 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						ZSBH3	BPBH1
Sample Number						116505	116506
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	13
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	1	7
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	92.7	91.2

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						BCBH2	BCBH4
Sample Number						116507	116508
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.9	7.3
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	123	111
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	846	740
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.3	1.4↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	392	432
Langelier Index at 25°C	A	---	WLAB053	---	---	0.7	0.2
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	86	57
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	20	12
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.6	0.6
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	17↓	7.6
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	1.6↓	0.7
Silica as SiO_2	N	---	WLAB046	---	---	78	78
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	62	62
Potassium as K	A	7.9	WLAB015	---	---	8.5	7.4
Calcium as Ca	A	9.5	WLAB015	---	---	66	67
Magnesium as Mg	A	9.5	WLAB015	---	---	84	78
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	142	143
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	80	76
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						BCBH2	BCBH4
Sample Number						116507	116508
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	38	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	33
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	30	36↓
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	95.2	93.3

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MBBH3	MVBH31
Sample Number						116509	116510
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.5	6.7
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	123	132
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	788	928
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.2	0.3
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	500	244
Langelier Index at 25°C	A	---	WLAB053	---	---	0.6	-0.4
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	50	219
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	14	46
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.2	0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	2.5	18↓
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.2	1.6↓
Silica as SiO_2	N	---	WLAB046	---	---	42	17.5
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	73	23
Potassium as K	A	7.9	WLAB015	---	---	6.9	4.3
Calcium as Ca	A	9.5	WLAB015	---	---	82	112
Magnesium as Mg	A	9.5	WLAB015	---	---	86	78
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	104	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	28	112
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	53	<25
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MBBH3	MVBH31
Sample Number						116509	116510
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	380
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	2
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	4	2
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	0.032
% Balancing	N	---	---	---	---	90.0	99.3

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MVBH32	MVBH5
Sample Number						116511	116512
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.6	7.0
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	88.9	102
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	592	602
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	4	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	1.0	0.2
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	244	368
Langelier Index at 25°C	A	---	WLAB053	---	---	0.1	0.0
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	101	19
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	82	17
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.3	<0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	2.0	4.0
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.2	0.4
Silica as SiO_2	N	---	WLAB046	---	---	11.8	9.5
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	1.6	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	65	5
Potassium as K	A	7.9	WLAB015	---	---	5.8	1.1
Calcium as Ca	A	9.5	WLAB015	---	---	56	115
Magnesium as Mg	A	9.5	WLAB015	---	---	37	75
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	<25	<25
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	41	<25
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						MVBH32	MVBH5
Sample Number						116511	116512
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	179↓	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	1	<1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	0.038	0.035
% Balancing	N	---	---	---	---	95.8	90.4

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T0391

CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-18 **Date completed:** 2021-02-03
Project number: 1000 **Report number:** 97361 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						HBH1
Sample Number						116513
Date/Time Sampled						N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.2
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	45.1
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	274
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	53↓
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	240
Langelier Index at 25°C	A	---	WLAB053	---	---	-0.3
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	9
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	9
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	<0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	0.2
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	<0.1
Silica as SiO_2	N	---	WLAB046	---	---	22
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	8
Potassium as K	A	7.9	WLAB015	---	---	2.3
Calcium as Ca	A	9.5	WLAB015	---	---	42
Magnesium as Mg	A	9.5	WLAB015	---	---	30
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	410↓
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	<25
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	<25
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1

J. Ngobeza - Chemical Technical Signatory

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						HBH1
Sample Number						116513
Date/Time Sampled						N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	714↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	78
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	<1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025
% Balancing	N	---	---	---	---	97.3

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AMENDED CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-25 **Date completed:** 2021-02-10
Project number: 1000 **Report number:** 97516_01-A **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						HPBH1	HPBH3
Sample Number						117073	117074
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.0	7.0
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	111	100
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	776	676
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	0.2	49↓
Total Alkalinity as CaCO□	A	10	WLAB007	---	---	476	436
Langelier Index at 25°C	A	---	WLAB053	---	---	0.1	0.1
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	29	12
Sulphate as SO□	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	15	7
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.2	<0.2
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	2.4	0.6
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.2	<0.1
Silica as SiO□	N	---	WLAB046	---	---	31	15.6
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	<1.0
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	<0.1	0.2
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	23	8
Potassium as K	A	7.9	WLAB015	---	---	3.1	6.5
Calcium as Ca	A	9.5	WLAB015	---	---	111	98
Magnesium as Mg	A	9.5	WLAB015	---	---	81	82
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	279
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	40	<25
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	34	<25
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-25 **Date completed:** 2021-02-10
Project number: 1000 **Report number:** 97516_01-A **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						HPBH1	HPBH3
Sample Number						117073	117074
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	<25	796↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	137↓
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	1	1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025	<0.025
% Balancing	N	---	---	---	---	92.5	94.8

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						IMBH1	MBH09
Sample Number						117075	117076
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.5	6.7
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	142	663↓
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	1028	4542↓
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	1.4↓	49↓
Total Alkalinity as CaCO□	A	10	WLAB007	---	---	376	564
Langelier Index at 25°C	A	---	WLAB053	---	---	0.4	0.0
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	186	1861↓
Sulphate as SO□	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	24	128
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.7	5.8↓
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	4.2	3.1
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05	0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.4	0.3
Silica as SiO□	N	---	WLAB046	---	---	86	34
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0	1.8
Oil & Grease	N	---	WLAB034	---	---	<1	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	0.1	0.3
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	131	892↓
Potassium as K	A	7.9	WLAB015	---	---	8.3	55
Calcium as Ca	A	9.5	WLAB015	---	---	88	132
Magnesium as Mg	A	9.5	WLAB015	---	---	48	182
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100	278
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	313	156
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	121	670
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						IMBH1	MBH09
Sample Number						117075	117076
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	70
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	123	636↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1	1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	<25	464↓
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	7	54↓
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	0.094	<0.025
% Balancing	N	---	---	---	---	97.6	96.0

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Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						WBR50
Sample Number						117078
Date/Time Sampled						N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.1
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	336↓
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	2412↓
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	<1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	50↓
Total Alkalinity as CaCO□	A	10	WLAB007	---	---	300
Langelier Index at 25°C	A	---	WLAB053	---	---	0.0
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	716↓
Sulphate as SO□	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	301↓
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	2.2↓
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	0.6
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	<0.1
Silica as SiO□	N	---	WLAB046	---	---	11.5
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0
Oil & Grease	N	---	WLAB034	---	---	1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	0.2
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	415↓
Potassium as K	A	7.9	WLAB015	---	---	29
Calcium as Ca	A	9.5	WLAB015	---	---	122
Magnesium as Mg	A	9.5	WLAB015	---	---	90
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	212
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	33
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	661
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1

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Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						WBR50
Sample Number						117078
Date/Time Sampled						N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	70
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	877↓
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	2
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	443↓
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025
% Balancing	N	---	---	---	---	99.5

J. Ngobeza - Chemical Technical Signatory

This Certificate, **97516_01-A,** replaces the previous Certificate of Analysis **97516_01**

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T0391

CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-25 **Date completed:** 2021-02-15
Project number: 1000 **Report number:** 97516_02 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						HLBH1
Sample Number						117077
Date/Time Sampled						N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	7.5
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	330↓
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	2534↓
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	1.3↓
Free Residual Chlorine as Cl_2	N	---	WLAB036	Chronic health	≤5	<0.1
Monochloramine	N	---	WLAB036	Chronic health	≤3	<0.1
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	272
Langelier Index at 25°C	A	---	WLAB053	---	---	0.5
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	684↓
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	382↓
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	2.2↓
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	4.1
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	0.4
Silica as SiO_2	N	---	WLAB046	---	---	38
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	<1.0
Free Cyanide as CN (µg/ℓ)	N	---	WLAB056	Acute health	≤200	<10
Phenols (µg/ℓ)	N	---	WLAB041	Aesthetic	≤10	<10
Microcystin as LR (µg/ℓ)	N	---	WLAB071	Chronic health	≤1	<0.15
Chloroform as $CHCl_3$ (µg/ℓ)	S	---	---	Chronic health	≤300	<5
Bromoform as $CHBr_3$ (µg/ℓ)	S	---	---	Chronic health	≤100	<5
Dibromochloromethane as $CHBr_2Cl$ (µg/ℓ)	S	---	---	Chronic health	≤100	<2
Bromodichloromethane as $CHBrCl_2$ (µg/ℓ)	S	---	---	Chronic health	≤60	<10
Combined Trihalomethanes	N	---	WLAB059	Chronic health	≤1	<0.10
Total Colifom Bacteria / (100 mℓ)	A	6.1	WLAB021	Operational	≤10	390↓
E. coli / (100 mℓ)	A	5.0	WLAB021	Acute health	Not detected	18↓

A. van de Wetering - Chemical Technical Signatory

D.O. Mohlaloga - Microbiological Technical Signatory

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Bacteriological parameters analysed on: 2021-01-25

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CERTIFICATE OF ANALYSES

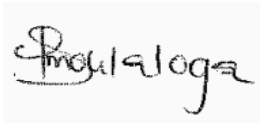
GENERAL WATER QUALITY PARAMETERS

Date received: 2021-01-25 **Date completed:** 2021-02-15
Project number: 1000 **Report number:** 97516_02 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification
						HLBH1
Sample Number						117077
Date/Time Sampled						N/A
Heterotrophic Plate Count / (1 mℓ)	A	4.5	WLAB021	Operational	≤1 000	6300↓
Somatic Coliphages / (10 mℓ)	N	---	WLAB073	---	---	0
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	353↓
Potassium as K	A	7.9	WLAB015	---	---	14.3
Calcium as Ca	A	9.5	WLAB015	---	---	167
Magnesium as Mg	A	9.5	WLAB015	---	---	116
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	34
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	343
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	72
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	69
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	<1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	51
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	6
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	<0.025
% Balancing	N	---	---	---	---	99.2

A. van de Wetering - Chemical Technical Signatory



D.O. Mohlaloga - Microbiological Technical Signatory

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Bacteriological parameters analysed on: 2021-01-25

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CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-03-01 **Date completed:** 2021-03-10
Project number: 1000 **Report number:** 98450 **Order number:** GIB6398

Client name: Digby Wells Environmental **Contact person:** Mr. A. van Zelfde
Address: Turnberry Office Park, 48 Grosvenor Rd, Bryanston, JHB 219 **e-mail:** arjan.vanzelfde@digbywells.com
Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						NPBH10	MVBH2
Sample Number						120380	120381
Date/Time Sampled						N/A	N/A
pH - Value @ 25 ºC	A	7.7	WLAB065	Operational	≥5 to ≤ 9.7	5.7	7.5
Electrical Conductivity in mS/m @ 25°C	A	7.0	WLAB002	Aesthetic	≤170	79.3	87.2
Total Dissolved Solids @ 180°C	A	5.6	WLAB027	Aesthetic	≤1200	532	534
Colour in PtCo Units	N	---	WLAB006	Aesthetic	≤15	2	1
Turbidity in N.T.U	A	7.6	WLAB005	Operational/Aest	≤1 / ≤5	1.1↓	0.2
Total Alkalinity as $CaCO_3$	A	10	WLAB007	---	---	<5	416
Langelier Index at 25°C	A	---	WLAB053	---	---	-4.6	0.5
Chloride as Cl	A	8.0	WLAB046	Aesthetic	≤300	144	42
Sulphate as SO_4	A	8.4	WLAB046	Acute health/Aest	≤500 / ≤250	33	35
Fluoride as F	A	6.7	WLAB014	Chronic health	≤1.5	0.2	0.3
Nitrate as N	A	4.8	WLAB046	Acute health	≤11	29↓	1.9
Nitrite as N	A	3.0	WLAB046	Acute health	≤0.9	0.1	<0.05
Combined Nitrate & Nitrite	A	---	WLAB046	Acute health	≤1	2.8↓	0.2
Silica as SiO_2	N	---	WLAB046	---	---	7.4	6.8
Total Organic Carbon as C	N	---	WLAB060	Chronic health	≤10	3.6	<1.0
Oil & Grease	N	---	WLAB034	---	---	2	<1
Free and Saline Ammonia as N	A	10	WLAB046	Aesthetic	≤1.5	0.2	<0.1
Sodium as Na	A	8.3	WLAB015	Aesthetic	≤200	76	27
Potassium as K	A	7.9	WLAB015	---	---	42	2.0
Calcium as Ca	A	9.5	WLAB015	---	---	5	86
Magnesium as Mg	A	9.5	WLAB015	---	---	20	56
Aluminium as Al (µg/ℓ)	A	8.1	WLAB015	Operational	≤300	215	<100
Antimony as Sb (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤20	1	<1
Arsenic as As (µg/ℓ)	A	9.6	WLAB050	Chronic health	≤10	<1	1
Barium as Ba (µg/ℓ)	A	9.4	WLAB015	Chronic health	≤700	960↓	<25
Boron as B (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤2400	27	26
Cadmium as Cd (µg/ℓ)	A	8.5	WLAB015	Chronic health	≤3	<1	<1

J. Ngobeza - Chemical Technical Signatory

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Project number: 1000 **Report number:** 98450 **Order number:** GIB6398

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Telephone: 011 789 9498 **Facsimile:** 011 069 6801 **Mobile:**

Analyses in mg/ℓ (Unless specified otherwise)		UOM %	Method ID	Risk	SANS 241 : 2015 Limits	Sample Identification	
						NPBH10	MVBH2
Sample Number						120380	120381
Date/Time Sampled						N/A	N/A
Total Chromium as Cr (µg/ℓ)	A	7.8	WLAB015	Chronic health	≤50	<25	<25
Copper as Cu (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤2000	<10	<10
Iron as Fe (µg/ℓ)	A	8.1	WLAB015	Chronic health/Aest	≤ 2000 / ≤300	143	<25
Lead as Pb (µg/ℓ)	A	9.7	WLAB015	Chronic health	≤10	1	1
Manganese as Mn (µg/ℓ)	A	8.3	WLAB015	Chronic health/Aest	≤ 400 / ≤100	349↓	<25
Mercury as Hg (µg/ℓ)	A	16	WLAB047	Chronic health	≤6	<1	<1
Nickel as Ni (µg/ℓ)	A	7.7	WLAB015	Chronic health	≤70	116↓	<25
Selenium as Se (µg/ℓ)	A	9.4	WLAB050	Chronic health	≤40	<1	<1
Uranium as U (µg/ℓ)	A	8.5	WLAB050	Chronic health	≤ 30	<1	<1
Zinc as Zn	A	8.0	WLAB015	Aesthetic	≤5	1.57	0.028
% Balancing	N	---	---	---	---	95.8	98.8

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Appendix E: Calibration Checks

Equipment Record Sheet

Date of Calibration	Equipment Type	Test/Calibration	Comments
10/01/2021	HANNA Multimeter (Handheld)	2 point pH and EC calibration	Equipment functioning well
10/01/2021	Dip meter	Batteries and accuracy	Batteries are have enough charge, euipment functioning well. Spare batteries available
11/01/2021	HANNA Multimeter (Handheld)	2 point pH and EC calibration	Equipment functioning well
11/01/2021	Dip meter	Batteries and accuracy	Batteries are have enough charge, euipment functioning well. Spare batteries available
12/01/2021	HANNA Multimeter (Handheld)	2 point pH and EC calibration	Equipment functioning well
12/01/2021	Dip meter	Batteries and accuracy	Batteries are have enough charge, euipment functioning well. Spare batteries available
13/01/2021	HANNA Multimeter (Handheld)	2 point pH and EC calibration	Equipment functioning well
13/01/2021	Dip meter	Batteries and accuracy	Batteries are have enough charge, euipment functioning well. Spare batteries available
14/01/2021	HANNA Multimeter (Handheld)	2 point pH and EC calibration	Equipment functioning well
14/01/2021	Dip meter	Batteries and accuracy	Batteries are have enough charge, euipment functioning well. Spare batteries available

15/01/2021	HANNA Multimeter (Handheld)	2 point pH and EC calibration	Equipment functioning well
15/01/2021	Dip meter	Batteries and accuracy	Batteries are have enough charge, euipment functioning well. Spare batteries available

DIGBY WELLS
ENVIRONMENTAL

Equipment Record Sheet

Date of Calibration	Equipment Type	Test/Calibration	Comments
21/01/2021	HANNA Multimeter (Handheld)	2 point pH and EC calibration	Equipment functioning well
21/01/2021	Dip meter	Batteries and accuracy	Batteries are have enough charge, euipment functioning well. Spare batteries available
22/01/2021	HANNA Multimeter (Handheld)	2 point pH and EC calibration	Equipment functioning well
22/01/2021	Dip meter	Batteries and accuracy	Batteries are have enough charge, euipment functioning well. Spare batteries available

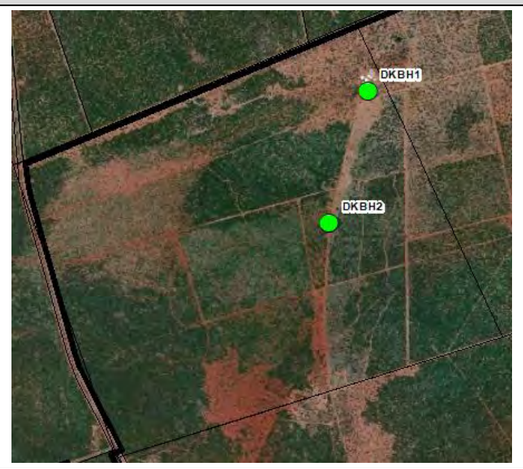
DIGBY WELLS
ENVIRONMENTAL

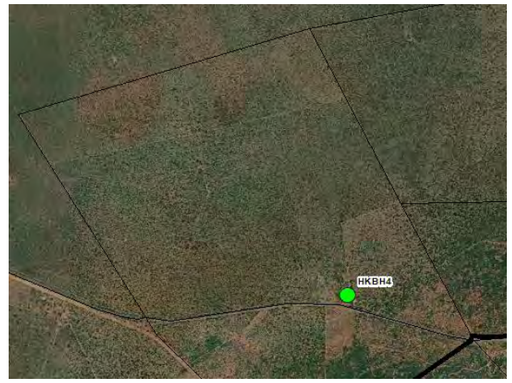
Equipment Record Sheet

Date of Calibration	Equipment Type	Test/Calibration	Comments
25/02/2021	HANNA Multimeter (Handheld)	2 point pH and EC calibration	Equipment functioning well
25/02/2021	Dip meter	Batteries and accuracy	Batteries are have enough charge, euipment functioning well. Spare batteries available

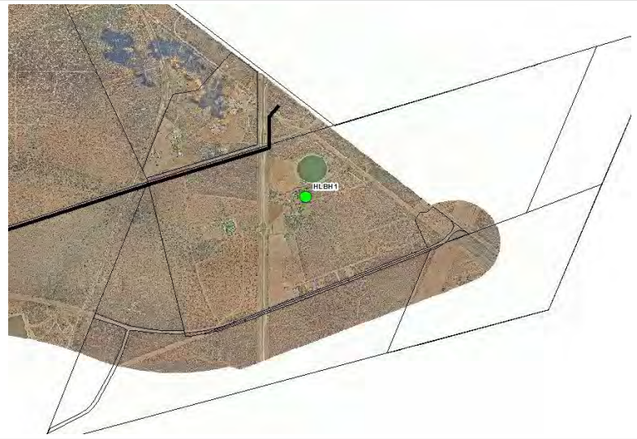
Appendix F: Borehole Summary Tables

<table>
<tr><th colspan="3">DKBH1</th></tr>
<tr><td colspan="2">Location: -24.4023 / 27.42291
Elevation: 1076
Farm: Diepkuil 135 KQ
Portion: Portion 2
Purpose: Domestic water supply
Equipment: Electric submersible
Analysis: Full SANS (241: 2015)

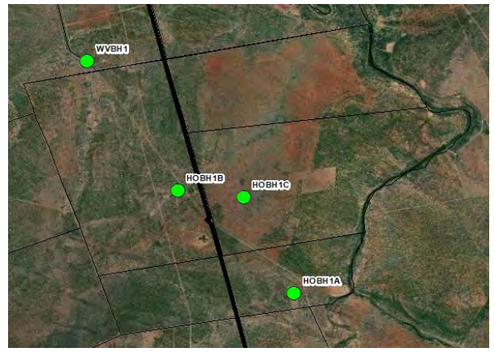
Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Total Coliform Bacteria, E. coli, Combined Nitrate & Nitrite</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 21/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Total Coliform Bacteria
Water Quality: Class 3</td><td>Data Quality Status: CBE -3.8%
Limitations: First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions
Actions Required: Assess second quarterly results for trends</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 05/10/2020 (Partly cloudy Weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Total Coliform Bacteria, E. coli and Combined Nitrate & Nitrite
Water Quality: Class 4</td><td>Data Quality Status: CBE -2.2%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: An increase in Total Coliform Bacteria caused the change in water classification from Class 3 to Class 4.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 11/01/2021 (Partly Cloudy)
Water Level: Not assessed – Abstracting during site visit.
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Total Coliform Bacteria and E. coli
Water Quality: Class 4</td><td>Data Quality Status: CBE -1.2%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Water quality improvements have been observed for combined nitrate and nitrite concentrations.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

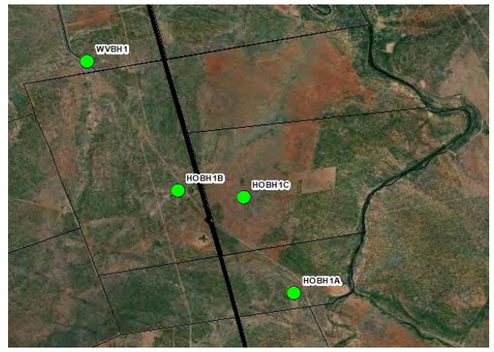
HKBH4		
Location: -23.7071 / 27.4506 **Elevation:** 940 **Farm:** Hooikraal 315 LQ **Portion:** Remaining Extent **Purpose:** Domestic water supply **Equipment:** Electric submersible **Analysis:** Full SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** Fluoride, E. coli and Total Coliform Bacteria		

First Quarter	**Date Surveyed:** 29/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Total Coliform Bacteria **Water Quality**: Class 3	**Data Quality Status:** CBE -4.6% **Limitations:** First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions **Actions Required:** Assess second quarterly results for trends.
Second Quarter	**Date Surveyed:** 07/10/2020 (Overcast weather) **Water Level:** N/A – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Fluoride, Barium and Total Coliform Bacteria **Water Quality**: Class 4	**Data Quality Status:** CBE -3.5% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends and take borehole picture next quarter **Notes:** An increase in Total Coliform Bacteria caused the change in water classification from Class 3 to Class 4.
Third Quarter	**Date Surveyed:** 11/01/2021 (Partly Cloudy) **Water Level:** Not assessed – Blocked by equipment **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Fluoride, E. coli and Total Coliform Bacteria **Water Quality**: Class 4	**Data Quality Status:** CBE -3.4% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** HKBH1 was found bordering on magnesium bicarbonate and magnesium sulphate in the second quarter. The classification was a preliminary estimation. Trends (first and third quarter) have confirmed that groundwater within this borehole falls under magnesium bicarbonate and thus records have been amended to accommodate this finding.
Fourth Quarter		

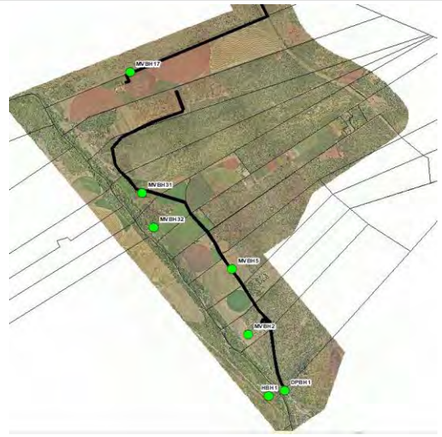
HLBH1		
Location: -23.6854 / 27.6039 **Elevation:** 879 **Farm:** Hanglip 508 LQ **Portion:** Portion 3 Remaining Extent **Purpose:** Domestic water supply **Equipment:** Electric submersible **Analysis:** Full SANS (241: 2015) **Water Level Average:** 7.16 mbgl **Water Level Range:** N/A **Main Hydrochemistry:** Sodium Chloride **Main Constituents of Concern:** Chloride, E. coli, Total Coliform Bacteria, Fluoride and Total Dissolved Solids		
First Quarter	**Date Surveyed:** 30/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Fluoride **Water Quality**: Class 4	**Data Quality Status:** CBE -2.8% **Limitations:** First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions **Actions Required:** Assess second quarterly results for trends and anomalous results
Second Quarter	**Date Surveyed:** 07/10/2020 (Overcast weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Fluoride, Total Dissolved Solids **Water Quality**: Class 4	**Data Quality Status:** CBE 1.6% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 22/01/2021 (Partly Cloudy) **Water Level:** 7.16 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Chloride, Fluoride, E. coli, Total Coliform Bacteria and Total Dissolved Solids **Water Quality**: Class 4	**Data Quality Status:** CBE 10.1% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent. There has been an emergence of additional constituents of concern in the third quarter as indicated.
Fourth Quarter		

<table>
<tr><th colspan="3">HOBH1B</th></tr>
<tr><td colspan="2">Location: -24.1754 / 27.4375
Elevation: 988
Farm: Haarlem Oost 51 KQ
Portion: Portion 16
Purpose: Domestic water supply
Equipment: Electric submersible
Analysis: Full SANS (241: 2015)

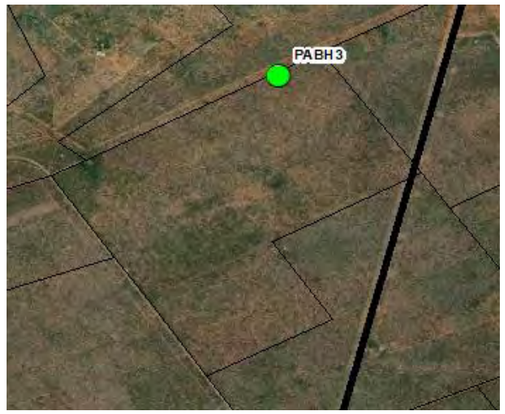
Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Total Coliform Bacteria</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 23/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit.
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: None Identified
Water Quality: Class 2</td><td>Data Quality Status: CBE -0.1%
Limitations: First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions
Actions Required: Assess second quarterly results for trends.</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 06/10/2020 (Overcast and rainy weather)
Water Level: Not assessed – Abstracting during site visit.
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: None Identified
Water Quality: Class 2</td><td>Data Quality Status: CBE-5.0%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 11/01/2021 (Partly Cloudy)
Water Level: Not assessed – Abstracting during site visit.
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Total Coliform Bacteria
Water Quality: Class 3</td><td>Data Quality Status: CBE -4.4%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry has been consistent. Deterioration to the water quality class according to the Water Research Commission was triggered by increased concentration in Total Coliform Bacteria.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

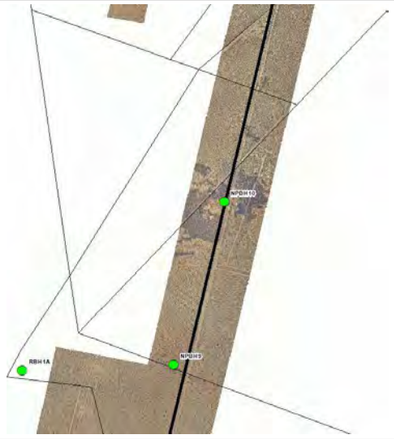
HOBH1C		
Location: -24.1766 / 27.44882 **Elevation:** 980 **Farm:** Haarlem Oost 51 KQ **Portion:** Portion 15 **Purpose:** Domestic water supply **Equipment:** Solar submersible **Analysis:** Full SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** None Identified		
First Quarter	**Date Surveyed:** 24/07/2020 (Sunny and clear weather) **Water Level:** N/A – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None Identified **Water Quality**: Class 2	**Data Quality Status:** CBE 1.3% **Limitations:** First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions **Actions Required:** Assess second quarterly results for trends
Second Quarter	**Date Surveyed:** 06/10/2020 (Overcast and rainy weather) **Water Level:** N/A – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None Identified **Water Quality**: Class 2	**Data Quality Status:** CBE -2.6% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent. Water quality in borehole has improved according to SANS 241: 2015, previously exceeding only aesthetic guidelines for manganese (100 mg/L) in quarter 1 (131 mg/L) to a concentration of 93 mg/L in quarter 2 which is not in excess of any of the SANS guidelines.
Third Quarter	**Date Surveyed:** 11/01/2021 (Partly Cloudy) **Water Level:** Not assessed – Abstracting during site visit. **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None Identified **Water Quality**: Class 2	**Data Quality Status:** CBE -2.5% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent
Fourth Quarter		

<table>
<tr><th colspan="4">MVBH17</th></tr>
<tr><td colspan="2">Location: -24.5921 / 27.2968
Elevation: 918
Farm: Mooivalei 342 KQ
Portion: Portion 1
Purpose: Domestic water supply
Equipment: Electric submersible
Analysis: Full SANS (241: 2015)

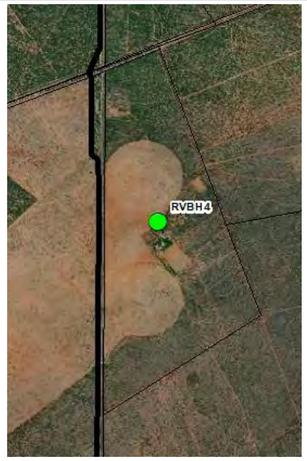
Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Combined nitrate & nitrite and nitrate, calcium and magnesium</td><td>  </td><td>  </td></tr>
<tr><td>First Quarter</td><td colspan="2">Date Surveyed: 20/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Combined Nitrate & Nitrite, Calcium and Magnesium
Water Quality: Class 3</td><td>Data Quality Status: CBE -0.3%
Limitations: First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions
Actions Required: Assess second quarterly results for trends and anomalous results</td></tr>
<tr><td>Second Quarter</td><td colspan="2">Date Surveyed: 05/10/2020 (Partly cloudy weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Combined Nitrate & Nitrite, Calcium and Magnesium

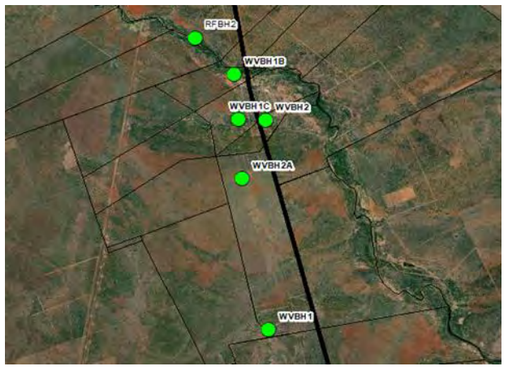
Water Quality: Class 3</td><td>Data Quality Status: CBE -1.6%
Limitations:
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td colspan="2">Date Surveyed: 11/01/2021 (Partly Cloudy)
Water Level: Not assessed – Blocked by equipment
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Combined Nitrate & Nitrite, Calcium and Magnesium
Water Quality: Class 3</td><td>Data Quality Status: CBE -1.0%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent</td></tr>
<tr><td>Fourth Quarter</td><td colspan="2"></td><td></td></tr>
</table>

PABH3		
Location: -24.4815 / 27.2715 **Elevation:** 962 **Farm:** Paarl 124 KQ **Portion:** Portion 6 **Purpose:** Domestic water supply **Equipment:** Electric submersible **Analysis:** Full SANS (241: 2015) **Water Level Average:** 46.2 mbgl **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** Uranium and Total Coliform Bacteria		
First Quarter	**Date Surveyed:** 21/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Uranium and Total Coliform Bacteria **Water Quality**: Class 3	**Data Quality Status:** CBE -4.2% **Limitations:** First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions **Actions Required:** Assess second quarterly results for trends and anomalous results
Second Quarter	**Date Surveyed:** 05/10/2020 (Partly cloudy weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Uranium and Total Coliform Bacteria **Water Quality**: Class 3	**Data Quality Status:** CBE -4.5% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 11/01/2021 (Partly Cloudy) **Water Level:** 46.20 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Uranium and Total Coliform Bacteria **Water Quality**: Class 3	**Data Quality Status:** CBE -4.4% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent
Fourth Quarter		

RBH1A		
Location: -23.8726 / 27.3919 **Elevation:** 998 **Farm:** Rooipan 355 LQ **Portion:** Portion 2 **Purpose:** Domestic water supply **Equipment:** Electric submersible **Analysis:** Full SANS (241: 2015) **Water Level Average:** 38.55 mbgl **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Sulphate **Main Constituents of Concern:** E. coli and Total Coliform Bacteria		
First Quarter	**Date Surveyed:** 30/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Chloride **Constituents of Concern:** None Identified **Water Quality**: Class 1	**Data Quality Status:** CBE -6.5% **Limitations:** First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions **Actions Required:** Assess second quarterly results for trends
Second Quarter	**Date Surveyed:** 05/10/2020 (Overcast weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Sulphate **Constituents of Concern:** E. coli and Total Coliform Bacteria and Turbidity **Water Quality**: Class 4	**Data Quality Status:** CBE -1.7% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** An increase in Total Coliform Bacteria caused the change in water classification from Class 1 to Class 4.
Third Quarter	**Date Surveyed:** 11/01/2021 (Partly Cloudy) **Water Level:** 38.55 mbgl (static) **Hydrochemistry:** Magnesium Sulphate **Constituents of Concern:** Total Coliform Bacteria **Water Quality**: Class 4	**Data Quality Status:** CBE -4.6% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent compared to the second quarter. The first quarter did not follow the same trends.
Fourth Quarter		

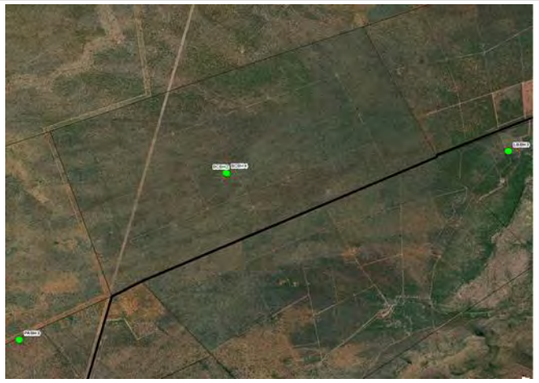
<table>
<tr><th colspan="4">RVBH4</th></tr>
<tr><td colspan="2">Location: -24.303 / 27.45397
Elevation: 1017
Farm: Ruigtevley 97 KQ
Portion: Remaining Extent
Purpose: Domestic water supply
Equipment: Electric submersible
Analysis: Full SANS (241: 2015)

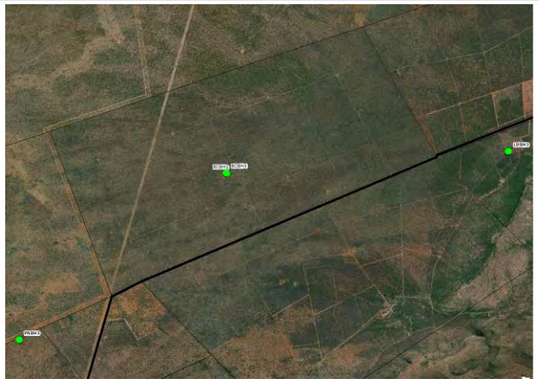
Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Combined Nitrate & Nitrite</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 22/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Combined Nitrate & Nitrite and Nitrate Water Quality: Class 2</td><td colspan="2">Data Quality Status: CBE 7.2%
Limitations: First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions
Actions Required: Assess second quarterly results for trends and anomalous results</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 06/10/2020 (Overcast and rainy weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Combined Nitrate & Nitrite
Water Quality: Class 2</td><td colspan="2">Data Quality Status: CBE 3.0%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 11/01/2021 (Partly Cloudy)
Water Level: Not assessed – Abstracting during site visit.
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: E. coli, Combined Nitrate & Nitrite
Water Quality: Class 3</td><td colspan="2">Data Quality Status: CBE 2.0%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry been consistent. Water quality class according to the Water Research Commission has deteriorated due to an increased E.coli concentration</td></tr>
<tr><td>Fourth Quarter</td><td></td><td colspan="2"></td></tr>
</table>

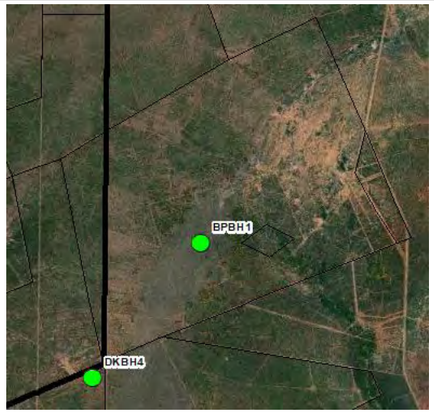
WVBH1B		
Location: -24.0844 / 27.4126 **Elevation:** 928 **Farm:** Welgevonden 16 KQ **Portion:** Portion 5 **Purpose:** Domestic water supply (Hunting Camp) **Equipment:** Solar submersible **Analysis:** Full SANS (241: 2015) **Water Level Average:** 10.4 mbgl **Water Level Range:** 10.1 - 10.8 mbgl **Main Hydrochemistry:** Sodium chloride **Main Constituents of Concern:** Sulphate, Fluoride, Manganese, Uranium, E. coli, Electrical Conductivity, Total Dissolved Solids, Chloride, Sodium and Total Coliform Bacteria		

First Quarter	**Date Surveyed:** 24/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium chloride **Constituents of Concern:** Sulphate, Fluoride, Manganese, Uranium, Electrical Conductivity, Total Dissolved Solids, Chloride and Sodium **Water Quality**: Class 4	**Data Quality Status:** CBE -8.3% **Limitations:** First quarter bacteriological samples submitted to WaterLab outside the 24-hour timeframe. This will be amended for the next quarterly submissions **Actions Required:** Assess second quarterly results for trends and anomalous results.
Second Quarter	**Date Surveyed:** 06/10/2020 (Overcast and rainy weather) **Water Level:** 10.8 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Sulphate, Fluoride, Manganese, Uranium, E. coli, Electrical Conductivity, Total Dissolved Solids, Chloride, Sodium and Total Coliform Bacteria **Water Quality**: Class 4	**Data Quality Status:** CBE -1.5 **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 11/01/2021 (Partly Cloudy) **Water Level:** 10.14 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Sulphate, Uranium, Fluoride, Manganese, E. coli, Electrical Conductivity, Total Dissolved Solids, Chloride, Sodium and Total Coliform Bacteria **Water Quality**: Class 4	**Data Quality Status:** CBE -4.1 **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Water level, hydrochemistry and water quality class according to the Water Research Commission has been consistent.
Fourth Quarter		

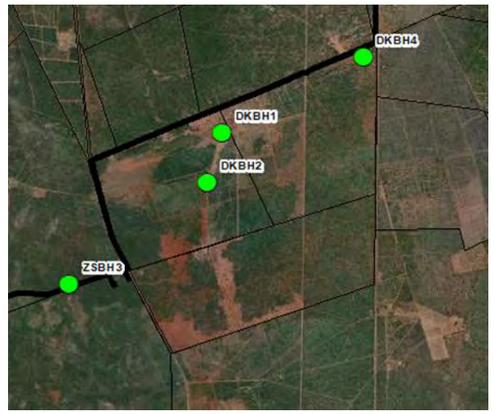
<table>
<tr><th colspan="4">BCBH2</th></tr>
<tr><td colspan="2">Location: -24.4459 / 27.31613
Elevation: 1002
Farm: Buffelsvley 127 KQ
Portion: Remaining Extent
Purpose: Domestic water
Equipment: Diesel Mono
Analysis: Reduced SANS

Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Combined Nitrate &Nitrite, Uranium</td><td>  </td><td colspan="2">  </td></tr>
<tr><td>Second Quarter</td><td colspan="2">Date Surveyed: 09/12/2020 (Partly cloudy)
Water Level: Not assessed – Pump equipment blocking the dip meter
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Combined Nitrate &Nitrite and Uranium
Water Quality: Class 2</td><td>Data Quality Status: 1.1
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes:</td></tr>
<tr><td>Third Quarter</td><td colspan="2">Date Surveyed: 14/01/2021 (Sunny)
Water Level: Not assessed – Blocked
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Combined Nitrate &Nitrite
Water Quality: Class 2</td><td>Data Quality Status: CBE 8.9%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Water quality improvements have been observed for uranium</td></tr>
<tr><td>Fourth Quarter</td><td colspan="2"></td><td></td></tr>
</table>

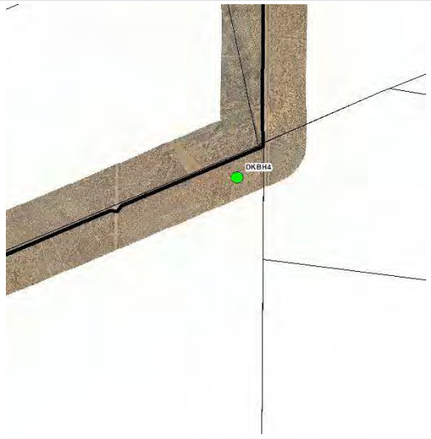
BCBH4		
Location: -24.4458 / 27.31596 **Elevation:** 1003 **Farm:** Buffelsvley 127 KQ **Portion:** Remaining Extent **Purpose:** Unused **Equipment:** None **Analysis**: Reduced SANS **Water Level Average:** 34.5 mbgl **Water Level Range:** 34.5 - 34.6 mbgl **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** Uranium		
Second Quarter	**Date Surveyed:** 09/12/2020 (Partly cloudy) **Water Level:** 34.63 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Uranium **Water Quality**: Class 2	**Data Quality Status:** -0.3% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** N/A
Third Quarter	**Date Surveyed:** 14/01/2021 (Sunny) **Water Level:** 34.50 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Uranium **Water Quality**: Class 2	**Data Quality Status:** CBE 8.6% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Water level, hydrochemistry and water quality class according to the Water Research Commission has been consistent.
Fourth Quarter		

BPBH1		
Location: -24.3657 / 27.4656 **Elevation:** 1029 **Farm:** Blaauwpan 133 KQ **Portion:** Remaining Extent **Purpose:** Game and Livestock **Equipment:** Electric submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 38.11 mbgl **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** Barium		
First Quarter	**Date Surveyed:** 01/08/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Barium **Water Quality**: Class 1	**Data Quality Status:** CBE 0.4% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment. Verify borehole purpose.
Second Quarter	**Date Surveyed:** 19/10/2020 (Sunny and clear weather (heat wave)) **Water Level:** 38.11 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Barium **Water Quality**: Class 1	**Data Quality Status:** CBE -0.4 **Limitations:** N/A **Actions Required:** Verify borehole purpose. Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 14/01/2021 (Sunny) **Water Level:** Not assessed – Blocked by equipment **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Barium **Water Quality**: Class 1	**Data Quality Status:** CBE 9.5% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent
Fourth Quarter		

<table>
<tr><th colspan="3">DKBH2</th></tr>
<tr><td colspan="2">Location: -24.4106 / 27.4204
Elevation: 1079
Farm: Diepkuil 135 KQ
Portion: Portion 2
Purpose: Domestic water supply and game
Equipment: Electric submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Sodium Bicarbonate
Main Constituents of Concern: Fluoride and Arsenic</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 21/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Bicarbonate
Constituents of Concern: Fluoride and Arsenic
Water Quality: Class 3</td><td>Data Quality Status: CBE -5.2%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 05/10/2020 (Partly cloudy weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Bicarbonate
Constituents of Concern: Fluoride and Arsenic
Water Quality: Class 3</td><td>Data Quality Status: CBE -7.1%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 11/01/2021 (Partly Cloudy)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Bicarbonate
Constituents of Concern: Fluoride and Arsenic
Water Quality: Class 3</td><td>Data Quality Status: CBE -3.4%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

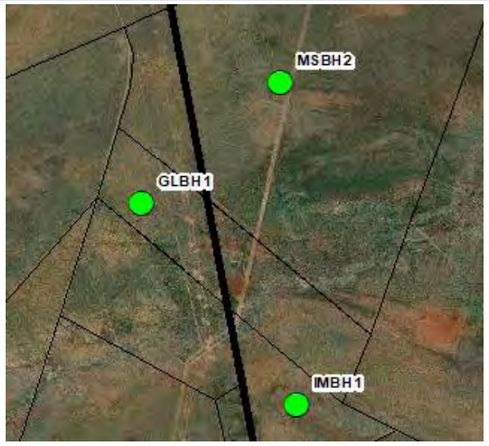
<table>
<tr><th colspan="3">DKBH4</th></tr>
<tr><td colspan="2">Location: -24.3895 / 27.4466
Elevation: 1051
Farm: Diepkuil 135 KQ
Portion: Portion 3
Purpose: Game
Equipment: Solar submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Fluoride and Uranium</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 23/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium bicarbonate
Constituents of Concern: Fluoride and Uranium
Water Quality: Class 3</td><td>Data Quality Status: CBE -2.1%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 05/10/2020 (Partly cloudy weather)
Water Level: N/A – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Fluoride and Uranium
Water Quality: Class 3</td><td>Data Quality Status: CBE -3.7%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 11/01/2021 (Partly Cloudy)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Fluoride and Uranium
Water Quality: Class 3</td><td>Data Quality Status: CBE -4.5%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="3">DPBH1</th></tr>
<tr><td colspan="2">Location: -24.6332 / 27.3167
Elevation: 902
Farm: Donkerpoort 344 KQ
Portion: Portion 10 Remaining Extent
Purpose: Monitoring
Equipment: None
Analysis: Reduced SANS (241: 2015)

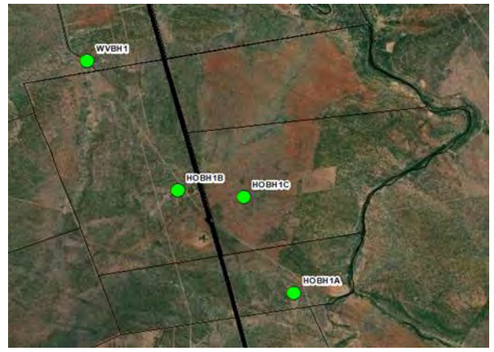
Water Level Average: 7.04 mbgl
Water Level Range: 6.76 – 7.31 mbgl
Main Hydrochemistry: Magnesium bicarbonate
Main Constituents of Concern: Manganese, nickel</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 21/07/2020 (Sunny and clear weather)
Water Level: 6.76 mbgl (static)
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Manganese, Nickel
Water Quality: Class 2</td><td>Data Quality Status: CBE -1.7%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 05/10/2020 (Overcast weather)
Water Level: 7.31 mbgl (static)
Hydrochemistry: Not sampled, not applicable Constituents of Concern: Not sampled, not applicable.
Water Quality: Not sampled, not applicable</td><td>Data Quality Status: Not sampled, not applicable
Limitations: Borehole has been destroyed and can no longer be sampled for water quality but can be measured for water levels. Borehole RFBH2 was selected as a replacement. RFBH2 is not located near to DPBH1 so a new table has been created for it.
Actions Required: Water level of destroyed borehole cannot be considered credible long term. It is recommended that borehole is abandoned and permanently replaced by RFBH2.
Notes: No trends to note, once off sampling conducted.</td></tr>
</table>

<table>
<tr><th colspan="3">GLBH1</th></tr>
<tr><td colspan="2">Location: -23.9979 / 27.38921
Elevation: 974
Farm: Groenland 397 LQ
Portion: Portion 2
Purpose: Game
Equipment: Solar submersible
Analysis: Reduced SANS (241: 2015)

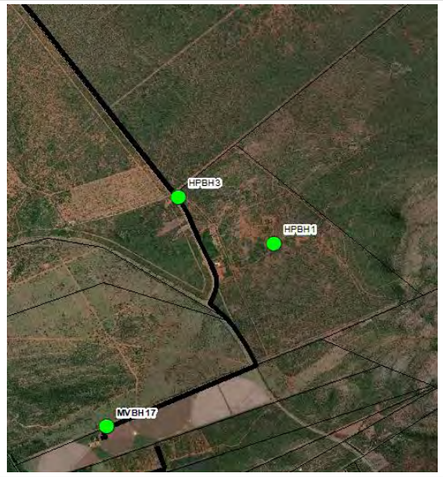
Water Level Average: 42.73 mbgl
Water Level Range: N/A
Main Hydrochemistry: Sodium Chloride
Main Constituents of Concern: Fluoride, Arsenic</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 28/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: Fluoride, Arsenic
Water Quality: Class 4</td><td>Data Quality Status: CBE -6.4%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 19/10/2020 (Sunny and clear weather (heatwave)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: Fluoride
Water Quality: Class 4</td><td>Data Quality Status: CBE -0.2
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 13/01/2021 (Sunny)
Water Level: 42.73 mbgl (static)
Hydrochemistry: Sodium Chloride
Constituents of Concern: Fluoride
Water Quality: Class 4</td><td>Data Quality Status: CBE -2.5%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="4">HBH1</th></tr>
<tr><td colspan="2">Location: -24.6339 / 27.3146
Elevation: 906
Farm: Hanover 667 KQ
Portion: Remaining Extent
Purpose: Monitoring
Equipment: None
Analysis: Reduced SANS (241: 2015)

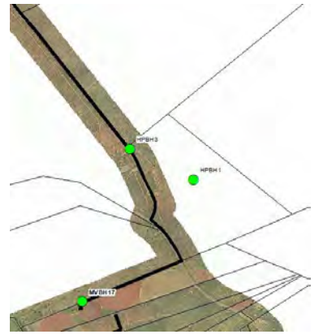
Water Level Average: 7.19 mbgl
Water Level Range: 6.90 – 7.24 mbgl
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Turbidity</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 20/07/2020 (Sunny and clear weather)
Water Level: 7.24 mbgl (static)
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: None Identified
Water Quality: Class 1</td><td colspan="2">Data Quality Status: CBE -1.3%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 05/10/2020 (Partly cloudy weather)
Water Level: 7.14 mbgl (static)
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Turbidity
Water Quality: Class 4</td><td colspan="2">Data Quality Status: CBE -2.3
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: An increase in Turbidity caused the change in water classification from Class 1 to Class 4.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 14/01/2021 (Sunny)
Water Level: 6.90 mbgl (static)
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Turbidity
Water Quality: Class 4</td><td colspan="2">Data Quality Status: CBE -2.5%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Water level and hydrochemistry have been consistent. Water quality class according to the Water Research Commission has been consistent since the second quarter.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td colspan="2"></td></tr>
</table>

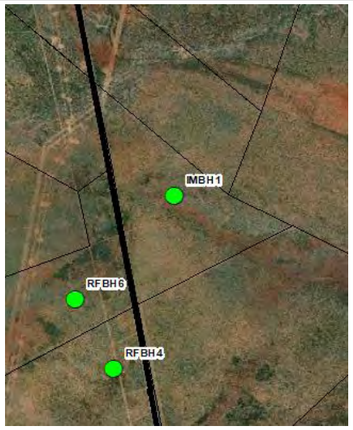
HOBH1A		
Location: -24.1929 / 27.4574 **Elevation:** 969 **Farm:** Haarlem Oost 51 KQ **Portion:** Remaining Extent **Purpose:** Domestic water supply and game / livestock **Equipment:** Electric submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** None		
First Quarter	**Date Surveyed:** 23/07/2020 (Sunny and clear weather) **Water Level:** N/A – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified. **Water Quality**: Class 2	**Data Quality Status:** CBE -2.1% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment.
Second Quarter	**Date Surveyed:** 13/11/2020 (Sunny) **Water Level:** Not measured, borehole cap secured, inhibiting access. **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -2% **Limitations:** Borehole was not sampled in the second quarter **Actions Required:** Take borehole picture next quarter. Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 13/01/2021 (Sunny) **Water Level:** Not assessed – Blocked by equipment **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None Identified **Water Quality**: Class 2	**Data Quality Status:** CBE 1.9% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent.
Fourth Quarter		

<table>
<tr><th colspan="3">HPBH1</th></tr>
<tr><td colspan="2">Location: -24.5706 / 27.3167
Elevation: 972
Farm: Stratford 462 KQ
Portion: Remaining Extent
Purpose: Game and livestock
Equipment: Electrical submersible
Analysis: Reduced SANS

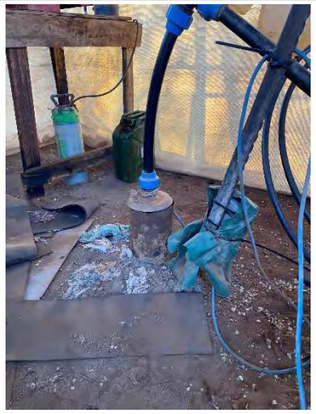
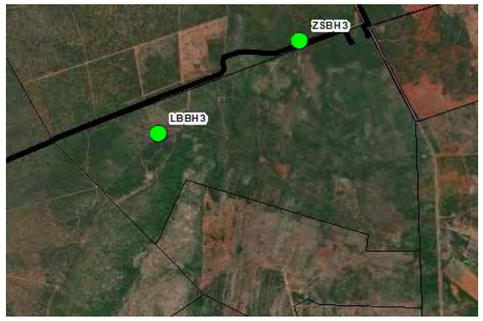
Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: None</td><td>  </td><td> 
</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 09/12/2020 (Partly cloudy)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: None Identified
Water Quality: Class 1</td><td>Data Quality Status: -4.1%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: N/A</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 22/01/2021 (Partly Cloudy)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: None Identified
Water Quality: Class 1</td><td>Data Quality Status: CBE 10.8%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="4">HPBH3</th></tr>
<tr><td colspan="2">Location: -24.5651 / 27.3053
Elevation: 965
Farm: Stratford 462 KQ
Portion: Remaining Extent
Purpose: Unused
Equipment: None
Analysis: None

Water Level Average: 35.4 mbgl
Water Level Range: 34.19 – 36.62 mbgl
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Turbidity</td><td>  </td><td>  </td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 09/12/2020 (Partly cloudy)
Water Level: 34.19 mbgl (static)
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Turbidity
Water Quality: Class 4</td><td colspan="2">Data Quality Status: -2.1%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: N/A</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 22/01/2021 (Partly Cloudy)
Water Level: 36.62 mbgl (static)
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Turbidity
Water Quality: Class 4</td><td colspan="2">Data Quality Status: CBE 13.8%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td colspan="2"></td></tr>
</table>

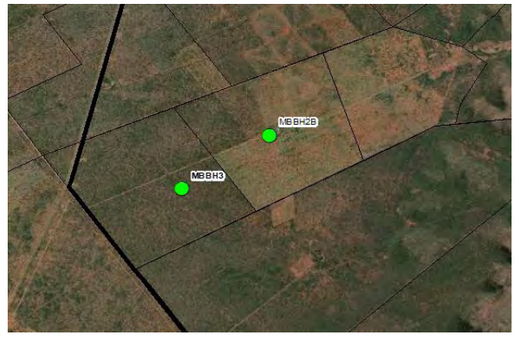
IMBH1		
Location: -24.0298 / 27.4140 **Elevation:** 942 **Farm:** Inkerman 10 KQ **Portion:** Portion 3 **Purpose:** Game **Equipment:** Diesel mono **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** None		
First Quarter	**Date Surveyed:** 28/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified. **Water Quality**: Class 1	**Data Quality Status:** CBE 0.6% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment. Verify borehole purpose.
Second Quarter	**Date Surveyed:** 07/10/2020 (Overcast weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE 1.6% **Limitations:** N/A **Actions Required:** Verify borehole purpose. Assess third quarterly results for trends, taking note of the turbidity trends. **Notes:** An increase in turbidity caused the change in water classification from Class 1 to Class 2. This is not identified as a parameter of concern as the water quality is marginal water quality and can be consumed without health effects by the majority of individuals except for sensitive individuals.
Third Quarter	**Date Surveyed:** 22/01/2021 (Partly Cloudy) **Water Level:** Not assessed – Diesel pump blocking borehole **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE 3.2 % **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry has been consistent. Water quality class according to the Water Research Commission has been consistent since the second quarter.
Fourth Quarter		

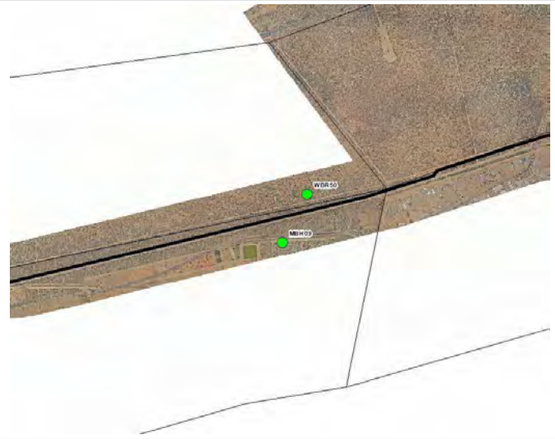
<table>
<tr><th colspan="3">LBBH3</th></tr>
<tr><td colspan="2">Location: -24.4411 / 27.3765
Elevation: 964
Farm: Leeuwbosch 129 KQ
Portion: Portion 1
Purpose: Domestic water supply
Equipment: Electric submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: None</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 22/07/2020 (Sunny and clear weather)
Water Level: N/A – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: None identified
Water Quality: Class 1</td><td>Data Quality Status: CBE -0.7%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 05/10/2020 (Partly cloudy weather)
Water Level: N/A – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: None identified
Water Quality: Class 1</td><td>Data Quality Status: CBE -3.8%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 14/01/2021 (Sunny)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: None identified
Water Quality: Class 1</td><td>Data Quality Status: CBE 8.9%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

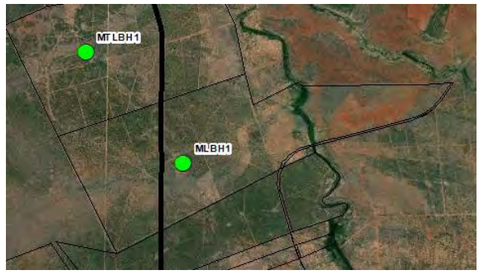
MBBH3		
Location: -24.5277 / 27.2938 **Elevation:** 966 **Farm:** Mecklenberg 310 KQ **Portion:** Portion 1 **Purpose:** Game **Equipment:** Solar submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 41.05 mbgl **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** None		

First Quarter	**Date Surveyed:** 20/07/2020 (Sunny and clear weather) **Water Level:** 41.05 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 1	**Data Quality Status:** CBE 0.2% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 19/10/2020 (Sunny and clear (heatwave) weather) **Water Level:** Not sampled, not applicable. **Hydrochemistry:** Not sampled, not applicable. **Constituents of Concern:** Not sampled, not applicable. **Water Quality:** Not sampled, not applicable.	**Data Quality Status:** Not sampled, not applicable. **Limitations:** Borehole being equipped with solar pump, so the borehole was inaccessible for sampling. Sampled MBBH2B as a backup this quarter **Actions Required:** Borehole will be revisited in the third quarter. If found accessible, monitoring of this borehole will resume, as opposed to MBBH2B. Assess third quarterly results for trends. **Notes:** No trends to note, once off sampling conducted.
Third Quarter	**Date Surveyed:** 14/01/2021 (Sunny) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE 10.6% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry has been consistent. Changes in the water quality class according to the Water Research Commission has been noted, the water quality remains in good condition despite the changes from Class 1 in the first quarter to Class 2 in the third quarter.
Fourth Quarter		

MBBH2B		
Location: -24.5188 / 27.3081 **Elevation:** 981 **Farm:** Mecklenberg 310 KQ **Portion:** Portion 4 **Purpose:** Domestic water supply and game **Equipment:** Electrical submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** TBC **Main Constituents of Concern:** Nitrate, Combination of Nitrate and Nitrite		
Second Quarter	**Date Surveyed:** 19/10/2020 (Sunny and clear (heatwave) weather) **Water Level:** Not assessed **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Nitrate, Combination of Nitrate and Nitrite **Water Quality**: Class 2	**Data Quality Status:** CBE 0.5% **Limitations:** MBBH3 is being equipped with solar pump so borehole was inaccessible for sampling. Sampled MBBH2B as a backup this quarter **Actions Required:** Assess third quarterly results for trends and take borehole picture next quarter **Notes:** No trends to note, once off sampling conducted.

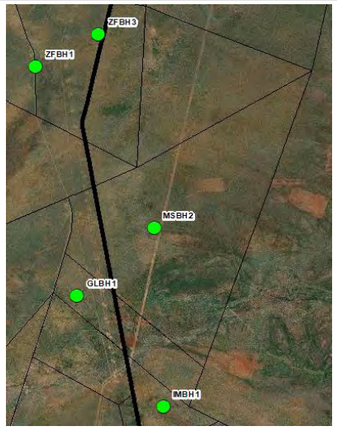
MBH09		
Location: -23.7037 / 27.5367 **Elevation:** 911 **Farm:** Naauwontkomen 509 LQ **Portion:** Remaining Extent **Purpose:** Monitoring **Equipment:** None **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 22.4 mbgl **Water Level Range:** 22.17 – 22.62 mbgl **Main Hydrochemistry:** Sodium Chloride **Main Constituents of Concern:** Electrical Conductivity, Total Dissolved Solids, Chloride, Fluoride, Manganese, and Uranium		

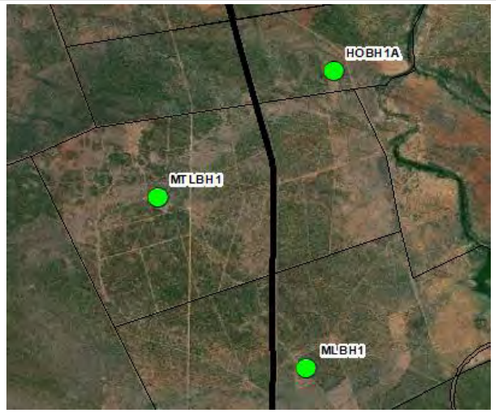
First Quarter	**Date Surveyed:** (Sunny and clear weather) **Water Level:** 22.62 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Electrical Conductivity, Total Dissolved Solids, Chloride, Fluoride and Uranium **Water Quality**: Class 4	**Data Quality Status:** CBE -3.9% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 08/10/2020 (Overcast weather) **Water Level:** 22.46 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Electrical Conductivity, Total Dissolved Solids, Chloride, Fluoride and Uranium **Water Quality**: Class 4	**Data Quality Status** CBE -1.1% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 22/01/2021 (Partly Cloudy) **Water Level:** 22.17 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Electrical Conductivity, Turbidity, Total Dissolved Solids, Sodium, Chloride, Manganese, Fluoride and Uranium **Water Quality**: Class 4	**Data Quality Status:** CBE -3.8% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent. There have been additional constituents of concern that have emerged in the third quarter as indicated.
Fourth Quarter		

MLBH1		
Location: -24.2303 / 27.4540 **Elevation:** 995 **Farm:** Matsulan 98 KQ **Portion:** Remaining Extent **Purpose:** Game **Equipment:** Diesel Mono **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 26.17 mbgl **Water Level Range:** 26.1 – 26.2 mbgl **Main Hydrochemistry:** Magnesium bicarbonate **Main Constituents of Concern:** None		

First Quarter	**Date Surveyed:** 23/07/2020 (Sunny and clear weather) **Water Level:** 26.2 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE 0.2% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 06/10/2020 (Overcast and rainy weather) **Water Level:** 26.2 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -4.7% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 13/01/2021 (Sunny) **Water Level:** 26.11 mbgl (static) **Hydrochemistry:** Magnesium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE 6.4% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent.
Fourth Quarter		

<table>
<tr><th colspan="3">MSBH2</th></tr>
<tr><td colspan="2">Location: -23.9784 / 27.4114
Elevation: 1003
Farm: Mabulskop 406 LQ
Portion: Remaining Extent
Purpose: Domestic Water Supply and Game
Equipment: Solar submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: 31.49 mbgl
Water Level Range: N/A
Main Hydrochemistry: Sodium chloride
Main Constituents of Concern: None</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 28/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: None identified
Water Quality: Class 1</td><td>Data Quality Status: CBE 8.9%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment. Verify borehole purpose.</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 07/10/2020 (Overcast weather)
Water Level: 31.49 mbgl (static)
Hydrochemistry: Magnesium Chloride
Constituents of Concern: Lead
Water Quality: Class 2</td><td>Data Quality Status: CBE -0.2%
Limitations: N/A
Actions Required: Verify borehole purpose. Assess third quarterly results for trends
Notes: An increase in turbidity and iron caused the change in water classification from Class 1 to Class 2. These are not identified as parameters of concern as the water quality is marginal water quality and can be consumed without health effects by the majority of individuals except for sensitive individuals.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 13/01/2021 (Sunny)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Chloride
Constituents of Concern: None Identified
Water Quality: Class 2</td><td>Data Quality Status: CBE 2.1%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Water quality improvements have been observed for lead. Hydrochemistry has been consistent. Water quality class according to the Water Research Commission has been consistent since the second quarter.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

MTLBH1		
Location: -24.2088 / 27.4354 **Elevation:** 1025 **Farm:** Matlabas 94 KQ **Portion:** Portion 2 **Purpose:** Domestic water supply and game **Equipment:** Electric submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 29.3 mbgl **Water Level Range:** 26.22 – 32.46 mbgl **Main Hydrochemistry:** Magnesium Chloride **Main Constituents of Concern:** Manganese		
First Quarter	**Date Surveyed:** 21/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE 0.7% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 06/10/2020 (Overcast and rainy weather) **Water Level:** 32.46 mbgl (static) **Hydrochemistry:** Magnesium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -6.0% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 13/01/2021 (Sunny) **Water Level:** 26.22 mbgl (static) **Hydrochemistry:** Magnesium Chloride **Constituents of Concern:** Manganese **Water Quality**: Class 2	**Data Quality Status:** CBE -3.0% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent. Manganese has emerged as a constituent of concern.
Fourth Quarter		

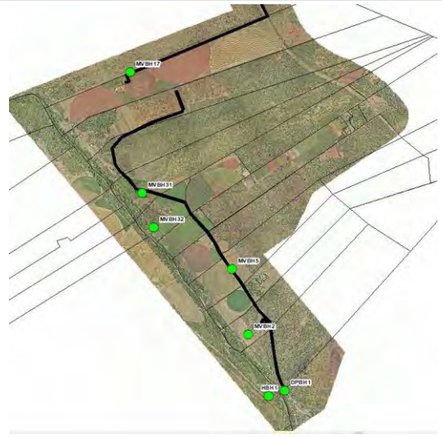
<table>
<tr><th colspan="3">MVBH2</th></tr>
<tr><td colspan="2">Location: -24.6259 / 27.3120
Elevation: 903
Farm: Mooivalei 342 KQ
Portion: Portion 10
Purpose: Domestic water supply and livestock
Equipment: Electric mono
Analysis: Reduced SANS (241: 2015)

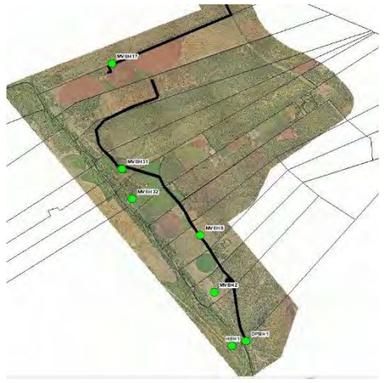
Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Magnesium</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 20/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Magnesium
Water Quality: Class 3</td><td>Data Quality Status: CBE -4.0%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 05/10/2020 (Partly cloudy weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Magnesium
Water Quality: Class 3</td><td>Data Quality Status: CBE -3.1%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 25/02/2021 (Partly cloudy weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Magnesium
Water Quality: Class 3</td><td>Data Quality Status: CBE -0.7 %
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="3">MVBH5</th></tr>
<tr><td colspan="2">Location: -24.6175 / 27.3099
Elevation: 907
Farm: Mooivalei 342 KQ
Portion: Portion 8
Purpose: Domestic water supply and irrigation
Equipment: Electric submersible
Analysis: Reduced SANS (241: 2015)

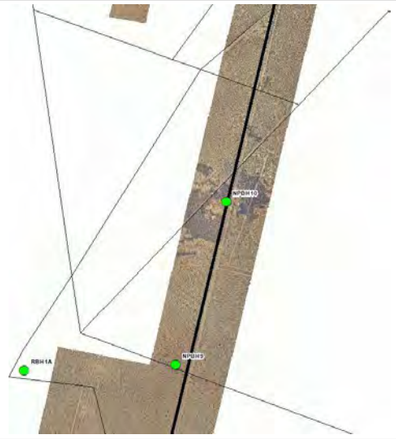
Water Level Average: 13.44 mbgl
Water Level Range: 11.52 – 15.35 mbgl
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Calcium and Magnesium</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 20/07/2020 (Sunny and clear weather)
Water Level: 15.35 mbgl (dynamic)
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Calcium and Magnesium
Water Quality: Class 3</td><td>Data Quality Status: CBE -0.6%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 05/10/2020 (Partly cloudy weather)
Water Level: 11.52 mbgl (static)
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Calcium and Magnesium
Water Quality: Class 3</td><td>Data Quality Status: CBE -1.2%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 14/01/2021 (Sunny)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Calcium and Magnesium
Water Quality: Class 3</td><td>Data Quality Status: CBE 18.9%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

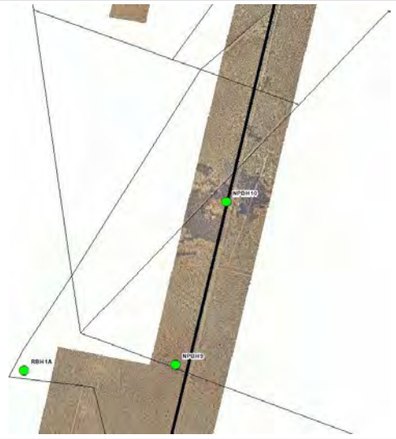
<table>
<tr><th colspan="3">MVBH31</th></tr>
<tr>
<td>Location: -24.6077 / 27.2983
Elevation: 901
Farm: Mooivalei 342 KQ
Portion: Portion 4
Purpose: Domestic water supply
Equipment: Electric submersible
Analysis: Reduced SANS (241: 2015)

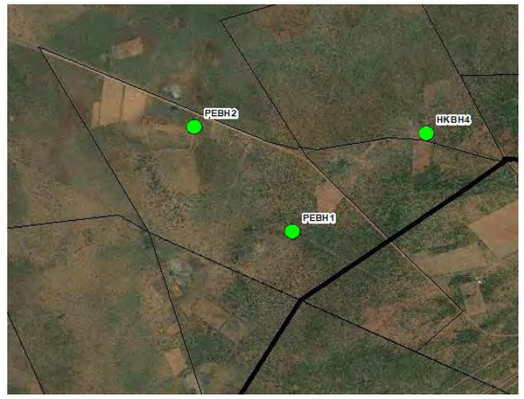
Water Level Average: 9.0 mbgl
Water Level Range: 8.64 – 9.39 mbgl
Main Hydrochemistry: Magnesium Sulphate
Main Constituents of Concern: Combined Nitrate and Nitrite</td>
<td>  </td>
<td> 
</td>
</tr>
<tr>
<td>First Quarter</td>
<td colspan="2">Date Surveyed: (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Sulphate
Constituents of Concern: None identified
Water Quality: Class 2
Data Quality Status: CBE 5.6%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td>
</tr>
<tr>
<td>Second Quarter</td>
<td colspan="2">Date Surveyed: 05/10/2020 (Partly cloudy weather)
Water Level: 8.64 mbgl (static)
Hydrochemistry: Magnesium Sulphate
Constituents of Concern: Combined Nitrate and Nitrite
Water Quality: Class 2
Data Quality Status: CBE -1.3%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td>
</tr>
<tr>
<td>Third Quarter</td>
<td colspan="2">Date Surveyed: 14/01/2021 (Sunny)
Water Level: 9.39 mbgl (static)
Hydrochemistry: Magnesium Chloride
Constituents of Concern: Combined Nitrate and Nitrite
Water Quality: Class 2
Data Quality Status: CBE 3.2%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry has changed in the third quarter. However, the water quality class according to the Water Research Commission has been consistent</td>
</tr>
<tr>
<td>Fourth Quarter</td>
<td></td>
<td></td>
</tr>
</table>

MVBH32		
Location: -24.6122 / 27.2999 **Elevation:** 902 **Farm:** Mooivalei 342 KQ **Portion:** Portion 5 **Purpose:** Farming **Equipment:** Electric submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 6.8 mbgl **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Chloride **Main Constituents of Concern:** None		
First Quarter	**Date Surveyed:** (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE 2.3% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment. Verify borehole purpose.
Second Quarter	**Date Surveyed:** 05/10/2020 (Partly cloudy weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Sulphate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -3.3 **Limitations:** N/A **Actions Required:** Verify borehole purpose. Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 14/01/2021 (Sunny) **Water Level:** 6.80 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -3.6% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry has been found inconsistent for all quarters thus far. Water quality class according to the Water Research Commission has been consistent
Fourth Quarter		

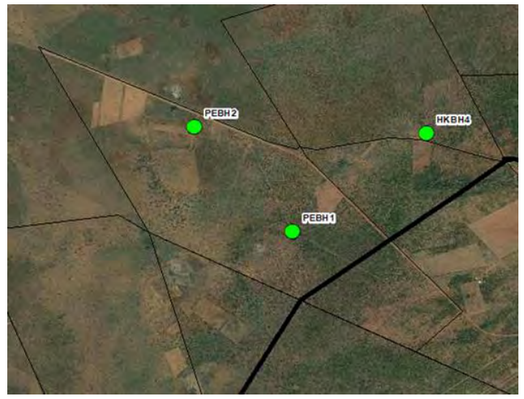
<table>
<tr><th colspan="3">NPBH10</th></tr>
<tr><td colspan="2">Location: -23.8553 / 27.4127
Elevation: 979
Farm: Naauwpoort 363 LQ
Portion: Remaining Extent
Purpose: Livestock
Equipment: Wind pump
Analysis: Reduced SANS (241: 2015)

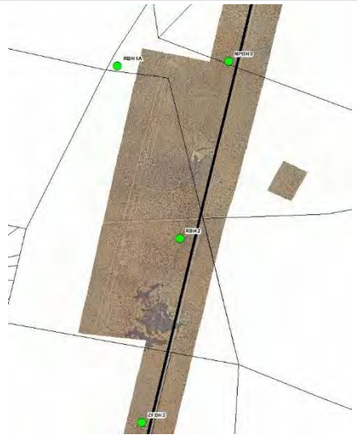
Water Level Average: 28.8 mbgl
Water Level Range: N/A
Main Hydrochemistry: Sodium Bicarbonate
Main Constituents of Concern: Turbidity, Manganese, Barium and Nickel</td><td>  </td><td>  </td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 30/07/2020 (Sunny and clear weather)
Water Level: 28.8 mbgl (static)
Hydrochemistry: Sodium Bicarbonate
Constituents of Concern: Manganese
Water Quality: Class 1</td><td>Data Quality Status: CBE -3.0%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 07/10/2020 (Overcast weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Bicarbonate
Constituents of Concern: Turbidity and Manganese
Water Quality: Class 3</td><td>Data Quality Status: CBE -3.6%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: An increase in turbidity caused the change in water classification from Class 1 to Class 3.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 26/02/2021 (Sunny)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Bicarbonate
Constituents of Concern: Turbidity, Barium and Nickel
Water Quality: Class 3</td><td>Data Quality Status: CBE 10.1 %
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends
Notes: Hydrochemistry has been found consistent for all quarters thus far. Barium and nickel have emerged as constituents of concern Water quality class according to the Water Research Commission has been consistent since the second quarter.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

NPBH9		
Location: -23.872 / 27.4075 **Elevation:** 993 **Farm:** Naauwpoort 363 LQ **Portion:** Remaining Extent **Purpose:** Livestock **Equipment:** Wind pump **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** Sodium Chloride **Main Constituents of Concern:** None		
First Quarter	**Date Surveyed:** 07/10/2020 (Overcast weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -1.7% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 07/10/2020 (Overcast weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -0.5% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 12/01/2021 (Partly Cloudy) **Water Level:** Not assessed – Blocked **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -2.5% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent
Fourth Quarter		

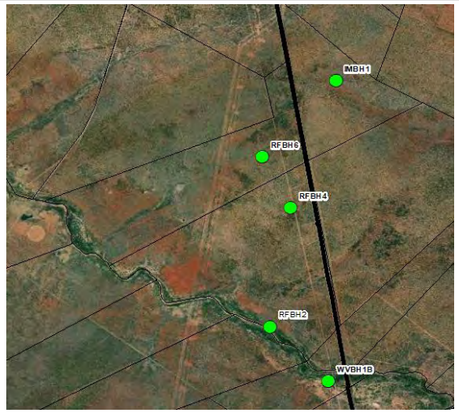
PEBH1		
Location: -23.7233 / 27.4286 **Elevation:** 941 **Farm:** Pontes Estates 712 KQ **Portion:** Remaining Extent **Purpose:** Game **Equipment:** Solar submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** Sodium chloride **Main Constituents of Concern:** None		
First Quarter	**Date Surveyed:** 28/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 1	**Data Quality Status:** CBE -4.8% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment. Verify missing borehole data
Second Quarter	**Date Surveyed:** 20/10/2020 (Sunny and clear (heatwave) weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -0.2% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** An increase in turbidity caused the change in water classification from Class 1 to Class 2. This is not identified as a parameter of concern as the water quality is marginal water quality and can be consumed without health effects by the majority of individuals except for sensitive individuals.
Third Quarter	**Date Surveyed:** Not Surveyed **Water Level:** Not assessed **Hydrochemistry:** N/A **Constituents of Concern:** N/A **Water Quality**: N/A	**Data Quality Status:** N/A **Limitations:** PEBH1 is sampled from an outlet approximately 700 m away from the borehole. The borehole is not constructed with a tap to sample from the borehole directly. **Actions Required:** Continue checking for access **Notes:** The outlet from which the water sample is collected was flooded during January and February.
Fourth Quarter		

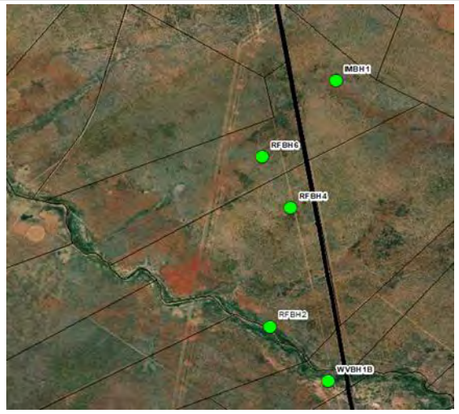
<table>
<tr><th colspan="3">PEBH2</th></tr>
<tr><td colspan="2">Location: -23.706076 / 27.412493
Elevation: 919
Farm: Pontes Estates 712 KQ
Portion: Remaining Extent
Purpose: Game
Equipment: Solar submersible
Analysis: Reduced SANS (241: 2015)

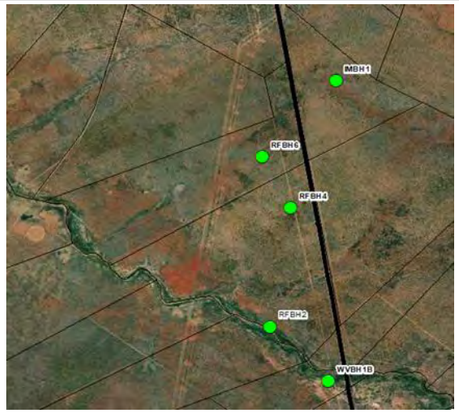
Water Level Average: 61.95 mbgl
Water Level Range: N/A
Main Hydrochemistry: Sodium Chloride
Main Constituents of Concern: Barium</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 30/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: Barium
Water Quality: Class 1</td><td>Data Quality Status: CBE -5.0%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment. Verify missing borehole data</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 20/10/2020 (Sunny and clear (heatwave) weather)
Water Level: 61.95 mbgl (static)
Hydrochemistry: Sodium Chloride
Constituents of Concern: Barium
Water Quality: Class 2</td><td>Data Quality Status: CBE -3.5
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: An increase in turbidity chloride and fluoride caused the change in water classification from Class 1 to Class 2. These are not identified as a parameter of concern as the water quality is marginal water quality and can be consumed without health effects by the majority of individuals except for sensitive individuals.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 12/01/2021 (Partly Cloudy)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: None Identified
Water Quality: Class 2</td><td>Data Quality Status: CBE -3.1%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Water quality improvements have been observed for barium. Hydrochemistry and water quality class according to the Water Research Commission has been consistent</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

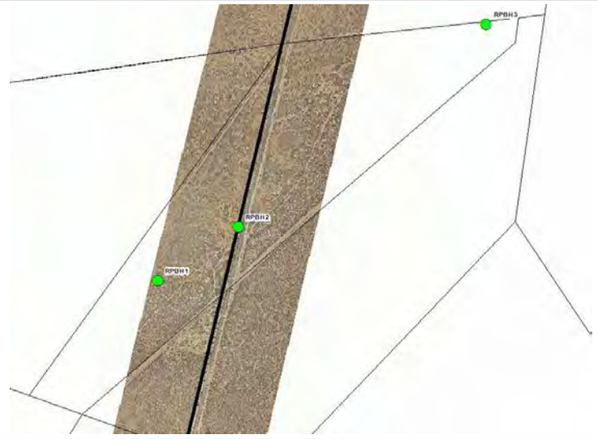
RBH2		
Location: -23.8969 / 27.4007 **Elevation:** 1012 **Farm:** Rooipan 357 LQ **Portion:** Portion 4 **Purpose:** Livestock **Equipment:** Diesel mono **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** Sodium Bicarbonate **Main Constituents of Concern:** None		
First Quarter	**Date Surveyed:** 30/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 1	**Data Quality Status:** CBE 0.6% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment. Verify borehole purpose.
Second Quarter	**Date Surveyed:** 07/10/2020 (Overcast weather) **Water Level:** Not assessed **Hydrochemistry:** Sodium Bicarbonate **Constituents of Concern:** Combined Nitrate & Nitrite and Nitrate **Water Quality**: Class 2	**Data Quality Status:** CBE 1.1% **Limitations:** Oil from the diesel pump was noted as a limitation for measuring the water level (cross-contamination between boreholes) **Actions Required:** Water levels from nearby boreholes should suffice. Sample to be obtained continuously. Assess third quarterly results for trends. Verify borehole purpose. **Notes:** An increase in turbidity and iron caused the change in water classification from Class 1 to Class 2. These are not identified as a parameter of concern as the water quality is marginal water quality and can be consumed without health effects by the majority of individuals except for sensitive individuals
Third Quarter	**Date Surveyed:** 12/01/2021 (Partly Cloudy) **Water Level:** Not assessed – Blocked by equipment **Hydrochemistry:** Sodium Bicarbonate **Constituents of Concern:** Combined Nitrate & Nitrite and Nitrate **Water Quality**: Class 2	**Data Quality Status:** CBE -0.3% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry has been consistent. Hydrochemistry and water quality class according to the Water Research Commission has been consistent since the second quarter.
Fourth Quarter		

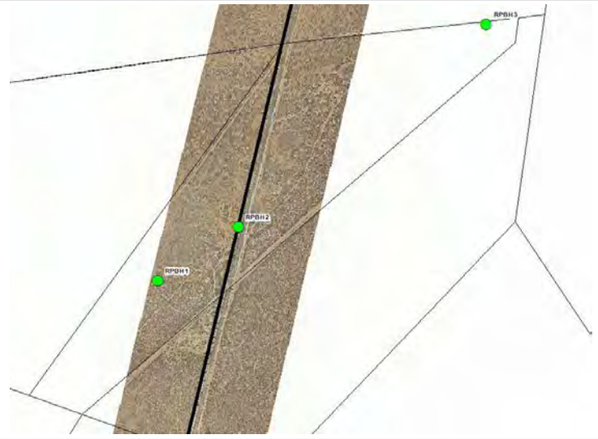
<table>
<tr><th colspan="3">RFBH2</th></tr>
<tr><td colspan="2">Location: -24.0746 / 27.4021
Elevation: 922
Farm: Rietfontein 15 KQ
Portion: Remaining Extent
Purpose: Game
Equipment: Solar submersible
Analysis: Reduced SANS (241: 2015)

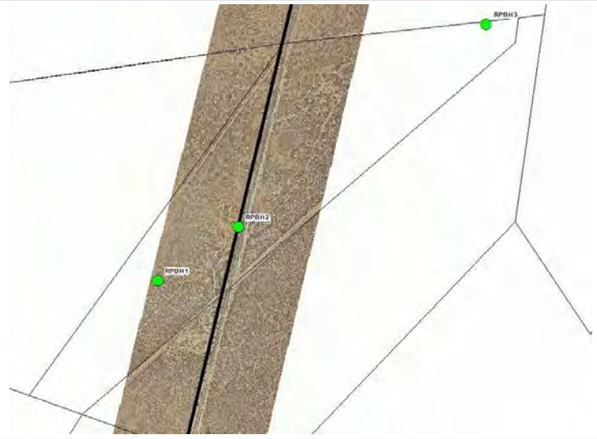
Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: TBC
Main Constituents of Concern: Fluoride and Combined Nitrate and Nitrite</td><td>  </td><td> 
</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 20/10/2020 (Sunny and clear (heatwave) weather)
Water Level: Not assessed
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Fluoride
Water Quality: Class 4</td><td>Data Quality Status: CBE -1.8%
Limitations: DPBH1 has been destroyed and can no longer be sampled for water quality but can be measured for water levels. Borehole RFBH2 was selected as a replacement. RFBH2 is not located near to DPBH1 so a new table has been created for it. This borehole was not sampled in the first quarter.
Actions Required: Assess third quarterly results for trends
Notes: No trends to note, once off sampling conducted</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 13/01/2021 (Sunny)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Sulphate
Constituents of Concern: Fluoride and Combined Nitrate and Nitrite
Water Quality: Class 4</td><td>Data Quality Status: CBE 4%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry has been found inconsistent in this borehole and combined nitrate and nitrite have emerged as constituents of concern. Water quality class according to the Water Research Commission has been consistent</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

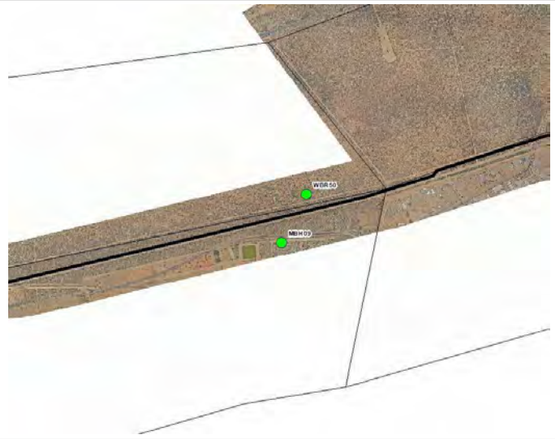
RFBH4		
Location: -24.0529 / 27.4058 **Elevation:** 952 **Farm:** Rietfontein 15 KQ **Portion:** Remaining Extent **Purpose:** Game **Equipment:** Electric submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 24.0 mbgl **Water Level Range:** 22 – 26.1 mbgl **Main Hydrochemistry:** Sodium Sulphate **Main Constituents of Concern:** Fluoride and Arsenic		
First Quarter	**Date Surveyed:** 29/07/2020 (Sunny and clear weather) **Water Level:** 26.1 mbgl (static) **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -4.9% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 06/10/2020 (Overcast and rainy weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -4.2 **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 13/01/2021 (Sunny) **Water Level:** 22 mbgl (static) **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -3.3% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent
Fourth Quarter		

RFBH6		
Location: -24.0436 / 27.4007 **Elevation:** 953 **Farm:** Rietfontein 820 KQ **Portion:** Remaining Extent **Purpose:** Game **Equipment:** Solar submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** Sodium Sulphate **Main Constituents of Concern:** Fluoride, Arsenic		
First Quarter	**Date Surveyed:** 29/07/2020 (Sunny and clear weather) **Water Level:** N/A – Abstracting during site visit **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -6.6% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 20/10/2020 (Sunny and clear (Heatwave) weather) **Water Level:** N/A – Abstracting during site visit **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -4.1 **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 13/01/2021 (Sunny) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -4.6% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent
Fourth Quarter		

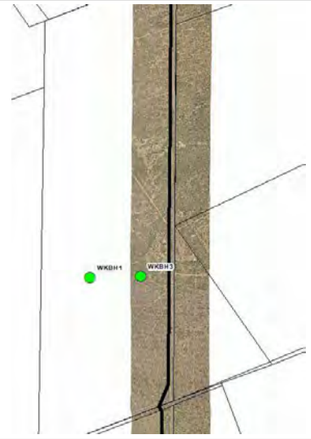
RPBH1		
Location: -23.8344 / 27.4142 **Elevation:** 961 **Farm:** Rhenosterpan 361 LQ **Portion:** Portion 4 **Purpose:** Game and Livestock **Equipment:** None **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 8.9 mbgl **Water Level Range:** 5.74 – 12.22 mbgl **Main Hydrochemistry:** Sodium Bicarbonate **Main Constituents of Concern:** Iron and Turbidity		
First Quarter	**Date Surveyed:** 24/07/2020 (Sunny and clear weather) **Water Level:** Not assessed **Hydrochemistry:** Sodium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 1	**Data Quality Status:** CBE -6.2% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment. Verify borehole purpose.
Second Quarter	**Date Surveyed:** 20/10/2020 (Sunny and clear (Heatwave) weather) **Water Level:** 12.22 mbgl (static) **Hydrochemistry:** Sodium Bicarbonate **Constituents of Concern:** Iron **Water Quality**: Class 3	**Data Quality Status:** CBE -3.6% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** An increase in turbidity and iron caused the change in water classification from Class 1 to Class 2. These are not identified as a parameter of concern as the water quality is marginal water quality and can be consumed without health effects by the majority of individuals except for sensitive individuals
Third Quarter	**Date Surveyed:** 12/01/2021 (Partly Cloudy) **Water Level:** 5.74 mbgl (static) **Hydrochemistry:** Sodium Bicarbonate **Constituents of Concern:** Iron and Turbidity **Water Quality**: Class 4	**Data Quality Status:** CBE 11.8% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry has been consistent since the second quarter. Water quality class according to the Water Research Commission has deteriorated due to an increased turbidity.
Fourth Quarter		

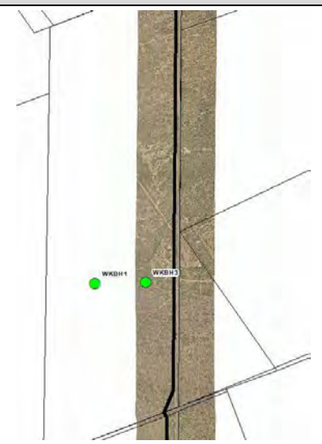
RPBH2		
Location: -23.8315 / 27-4185 **Elevation:** 956 **Farm:** Rhenosterpan 361 LQ **Portion:** Portion 4 **Purpose:** Game and Livestock **Equipment:** None (Equipment is swopped with RPBH3) **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 3.85 mbgl **Water Level Range:** 2.43 – 5.42 mbgl **Main Hydrochemistry:** Sodium Bicarbonate **Main Constituents of Concern:** Turbidity, Manganese and Iron		
First Quarter	**Date Surveyed:** 24/07/2020 (Sunny and clear weather) **Water Level:** 5.42 mbgl (static) **Hydrochemistry:** Sodium Bicarbonate **Constituents of Concern:** Iron **Water Quality**: Class 3	**Data Quality Status:** CBE -9.7% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 20/10/2020 (Sunny and clear (heatwave) weather) **Water Level:** 3.72 mbgl (static) **Hydrochemistry:** Sodium Bicarbonate **Constituents of Concern:** Turbidity and Iron **Water Quality**: Class 4	**Data Quality Status:** CBE -2.1% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** An increase in turbidity caused the change in water classification from Class 1 to Class 3.
Third Quarter	**Date Surveyed:** 12/01/2021 (Partly Cloudy) **Water Level:** 2.43 mbgl (static) **Hydrochemistry:** Sodium Bicarbonate **Constituents of Concern:** Turbidity, Manganese and Iron **Water Quality**: Class 4	**Data Quality Status:** CBE 8.9% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry has been consistent. Water quality class according to the Water Research Commission has been consistent since the second quarter. Manganese has emerged as a constituent of concern.
Fourth Quarter		

RPBH3		
Location: -23.8204 / 27.4321 **Elevation:** 956 **Farm:** Rhenosterpan 361 LQ **Portion:** Portion 4 **Purpose:** Game and livestock **Equipment:** Electrical Submersible (Equipment is swopped with RPBH2) **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 14.0 mbgl **Water Level Range:** N/A **Main Hydrochemistry:** Sodium Chloride **Main Constituents of Concern:** None		
First Quarter	**Date Surveyed:** 24/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 1	**Data Quality Status:** CBE -4.1% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 20/10/2020 (Sunny and clear (Heatwave) weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE 21.5% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** An increase in turbidity caused the change in water classification from Class 1 to Class 2. This is not identified as a parameter of concern as the water quality is marginal water quality and can be consumed without health effects by the majority of individuals except for sensitive individuals
Third Quarter	**Date Surveyed:** 12/01/2021 (Partly Cloudy) **Water Level:** 14.08 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE 13.5% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry has been consistent. Water quality class according to the Water Research Commission has been consistent since the second quarter.
Fourth Quarter		

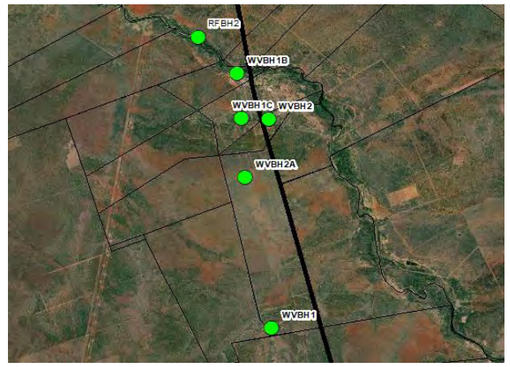
WBR50		
Location: -23.6991 / 27.5391 **Elevation:** 906 **Farm:** Hieromtrent 460 LQ **Portion:** Remaining Extent **Purpose:** Monitoring **Equipment:** None **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 28.0 mbgl **Water Level Range:** 23.6 – 32.8 mbgl **Main Hydrochemistry:** Sodium Chloride **Main Constituents of Concern:** Total Dissolved Solids, Chloride, Turbidity Sodium, Fluoride, Manganese and Iron		
First Quarter	**Date Surveyed:** 30/07/2020 (Sunny and clear weather) **Water Level:** 32.8 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Fluoride and Manganese **Water Quality**: Class 3	**Data Quality Status:** CBE -3.9% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 08/10/2020 (Overcast weather) **Water Level:** 23.6 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Turbidity, Fluoride, Manganese and Iron **Water Quality**: Class 4	**Data Quality Status:** CBE -2.6% **Limitations:** Inconsistency with water level **Actions Required:** Confirm measurement of water level in the borehole, either the first or second quarterly water level was misread or recorded incorrectly. Take Table 6 into the field to verify the measured water level against that which was measured previously, and record field observations and landowner comments should a difference of greater than 2 m be measured. Assess third quarterly results for trends. **Notes:** An increase in turbidity caused the change in water classification from Class 3 to Class 4.
Third Quarter	**Date Surveyed:** 22/01/2021 (Partly Cloudy) **Water Level:** 27.70 mbgl (static) **Hydrochemistry:** Sodium Chloride **Constituents of Concern:** Total Dissolved Solids, Chloride, Turbidity, Fluoride, Sodium and Manganese **Water Quality**: Class 4	**Data Quality Status:** CBE -0.4% **Limitations:** **Actions Required:** Assess fourth quarterly results for trends. **Notes:** The water level measured for the three quarters have indicated a difference that is greater than 2 m for all quarters. this indicated that the borehole is directly or indirectly affected by abstraction activities. water quality deterioration has been observed for total dissolved solids, chloride, sodium, however water quality improvements have been observed for manganese and iron.
Fourth Quarter		

<table>
<tr><th colspan="3">WKBH1</th></tr>
<tr><td>Location: -24.28 / 27.4424
Elevation: 1036
Farm: Witklip 665 KQ
Portion: Portion 4
Purpose: Domestic Water Supply and Game
Equipment: Electric submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium Bicarbonate
Main Constituents of Concern: Fluoride</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 22/07/2020 (Sunny and clear weather)
Water Level: N/A
– Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Fluoride
Water Quality: Class 3</td><td>Data Quality Status: CBE -3.8%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment. Verify borehole purpose.</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 05/10/2020 (Partly Cloudy weather)
Water Level: N/A– Abstracting during site visit
Hydrochemistry: Magnesium Bicarbonate
Constituents of Concern: Fluoride
Water Quality: Class 4</td><td>Data Quality Status: CBE -1.3%
Limitations: N/A
Actions Required: Verify borehole purpose. Assess third quarterly results for trends
Notes: An increase in fluoride caused the change in water classification from Class 3 to Class 4.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 14/01/2021 (Sunny)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium Chloride
Constituents of Concern: Fluoride
Water Quality: Class 4</td><td>Data Quality Status: CBE -2.0%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: A change in hydrochemistry has been observed only in the third quarter, trends will be confirmed in the fourth quarter. Water quality class according to the Water Research Commission has been consistent since the send quarter.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

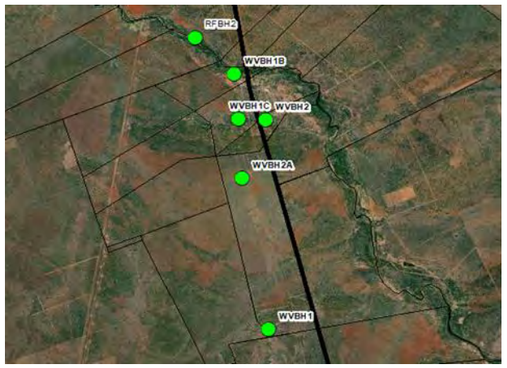
WKBH3		
Location: -24.2799 / 27.4469 **Elevation:** 1028 **Farm:** Witklip 665 KQ **Portion:** Portion 4 **Purpose:** Not used **Equipment:** None **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 51.3 mbgl **Water Level Range:** 51.22 – 51.48 mbgl **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** Fluoride		

First Quarter	**Date Surveyed:** 22/07/2020 (Sunny and clear weather) **Water Level:** 51.22 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -8.3% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 05/10/2020 (Partly Cloudy weather) **Water Level:** 51.48 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 2	**Data Quality Status:** CBE -4.3% **Limitations:** Inconsistency with water level **Actions Required:** Confirm measurement of water level in the borehole, either the first or second quarterly water level was misread or recorded incorrectly. Take Table 6 into the field to verify the measured water level against that which was measured previously, and record field observations and landowner comments should a difference of greater than 2 m be measured. Assess third quarterly results for trends. **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 14/01/2021 (Sunny) **Water Level:** 51.42 mbgl (static) **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** Fluoride **Water Quality**: Class 4	**Data Quality Status:** CBE -7.3% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry has been consistent. Water quality class according to the Water Research Commission has deteriorated to increased fluoride concentrations. Corrected an error with the water level reading for the first quarter from 41.22 to 51.22 mbgl.
Fourth Quarter		

WVBH1		
Location: -24.1533 / 27.4219 **Elevation:** 946 **Farm:** Welgevonden 16 KQ **Portion:** Portion 9 **Purpose:** Domestic water supply and game **Equipment:** Electric submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** N/A **Water Level Range:** N/A **Main Hydrochemistry:** Magnesium Bicarbonate **Main Constituents of Concern:** None		
First Quarter	**Date Surveyed:** 24/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 1	**Data Quality Status:** CBE 1.2% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment.
Second Quarter	**Date Surveyed:** 06/10/2020 (Overcast and rainy weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 1	**Data Quality Status:** CBE 3.7% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends and take borehole picture next quarter **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 13/01/2021 (Sunny) **Water Level:** Not assessed – Blocked by equipment **Hydrochemistry:** Magnesium Bicarbonate **Constituents of Concern:** None identified **Water Quality**: Class 1	**Data Quality Status:** CBE -0.5% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent
Fourth Quarter		

WVBH1C		
Location: -24.0965 / 27.4136 **Elevation:** 976 **Farm:** Welgevonden 949 KQ **Portion:** Remaining Extent **Purpose:** Domestic water supply and game **Equipment:** Electric submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 0 mbgl **Water Level Range:** 0 mbgl **Main Hydrochemistry:** Sodium Sulphate **Main Constituents of Concern:** Fluoride and Arsenic		
First Quarter	**Date Surveyed:** 24/07/2020 (Sunny and clear weather) **Water Level:** Not assessed – Abstracting during site visit **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -7.1% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 06/10/2020 (Overcast and rainy weather) **Water Level:** 0 mbgl (static) - artesian **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride **Water Quality**: Class 4	**Data Quality Status:** CBE -7.3% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 13/01/2021 (Sunny) **Water Level:** 0 mbgl (static) - artesian **Hydrochemistry:** **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -4.3% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:**
Fourth Quarter		

WVBH2		
Location: -24.0967 / 27.4211 **Elevation:** 939 **Farm:** Welgevonden 16 KQ **Portion:** Portion 2 **Purpose:** Domestic water supply and game **Equipment:** Electric submersible **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 0 mbgl **Water Level Range:** 0 mbgl **Main Hydrochemistry:** Sodium Sulphate **Main Constituents of Concern:** Fluoride and Arsenic		
First Quarter	**Date Surveyed:** (Sunny and clear weather) **Water Level:** Not assessed **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -6.5% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 06/10/2020 (Overcast and rainy weather) **Water Level:** 0 mbgl (static) - artesian **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE -5.0% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 11/01/2021 (Partly Cloudy) **Water Level:** 0 mbgl (static) - artesian **Hydrochemistry:** Sodium Sulphate **Constituents of Concern:** Fluoride and Arsenic **Water Quality**: Class 4	**Data Quality Status:** CBE 5.6% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry and water quality class according to the Water Research Commission has been consistent
Fourth Quarter		

WVBH2A		
Location: -24.1126 / 27.4148 **Elevation:** 963 **Farm:** Welgevonden 949 KQ **Portion:** Remaining Extent **Purpose:** Game **Equipment:** Diesel mono **Analysis:** Reduced SANS (241: 2015) **Water Level Average:** 10.5 mbgl **Water Level Range:** 9.92 – 10.96 mbgl **Main Hydrochemistry:** None Identified, fourth quarter to confirm. **Main Constituents of Concern:** Electrical Conductivity, Iron, Total Dissolved Solids, Turbidity, Chloride, Fluoride, Combination of Nitrite and Nitrate		

First Quarter	**Date Surveyed:** 24/07/2020 (Sunny and clear weather) **Water Level:** 10.6 mbgl (static) **Hydrochemistry:** Magnesium sulphate **Constituents of Concern:** Fluoride **Water Quality**: Class 4	**Data Quality Status:** CBE 1.7% **Limitations:** Nitrate and nitrite was not assessed **Actions Required:** Include nitrate in next assessment
Second Quarter	**Date Surveyed:** 06/10/2020 (Overcast and rainy weather) **Water Level:** 10.96 mbgl (static) **Hydrochemistry:** Magnesium bicarbonate **Constituents of Concern:** Nitrate and Combination of Nitrite & Nitrate **Water Quality**: Class 4	**Data Quality Status:** CBE 4.4% **Limitations:** N/A **Actions Required:** Assess third quarterly results for trends **Notes:** Water quality class according to the Water Research Commission has been consistent.
Third Quarter	**Date Surveyed:** 13/01/2021 (Sunny) **Water Level:** 9.92 mbgl (static) - artesian **Hydrochemistry:** Magnesium Chloride **Constituents of Concern:** Electrical Conductivity, Iron, Total Dissolved Solids, Turbidity, Chloride, Fluoride, Nitrate Calcium and Manganese. **Water Quality**: Class 4	**Data Quality Status:** CBE 11.4% **Limitations:** N/A **Actions Required:** Assess fourth quarterly results for trends. **Notes:** Hydrochemistry has been inconsistent for all quarters thus far. Water. Water quality class according to the Water Research Commission has been consistent. Additional constituents have emerged as constituents of concern as indicated.
Fourth Quarter		

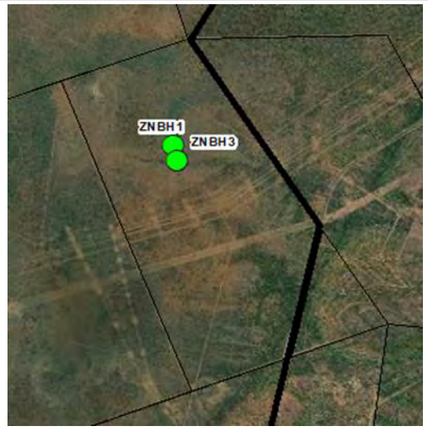
<table>
<tr><th colspan="3">ZFBH1</th></tr>
<tr><td colspan="2">Location: -23.932 / 27.3772
Elevation: 998
Farm: Zandfontein 382 LQ
Portion: Portion 2
Purpose: Livestock
Equipment: Solar submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Sodium Chloride
Main Constituents of Concern: Fluoride, Combination of Nitrite and Nitrate</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 30/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: None identified
Water Quality: Class 2</td><td>Data Quality Status: CBE 3.9%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 20/10/2020 (Sunny and clear (Heatwave) weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: Fluoride, Nitrate, Combination of Nitrite and Nitrate
Water Quality: Class 3</td><td>Data Quality Status: CBE 2.9%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: An increase in fluoride caused the change in water classification from Class 2 to Class 3.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 13/01/2021 (Sunny)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: Fluoride, Combination of Nitrite and Nitrate
Water Quality: Class 3</td><td>Data Quality Status: CBE 5.3%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry has been consistent. Water quality class according to the Water Research Commission has been consistent since the second quarter.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

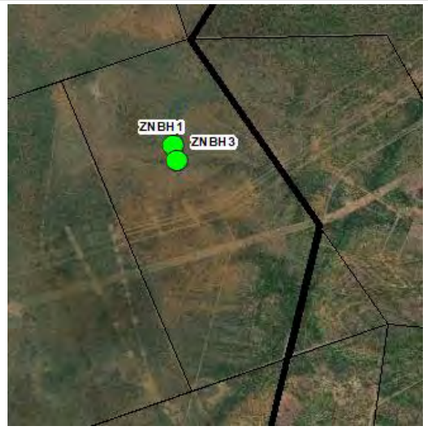
<table>
<tr><th colspan="3">ZFBH3</th></tr>
<tr><td colspan="2">Location: -23.9227 / 27.3954
Elevation: 1025
Farm: Zandfontein 382 LQ
Portion: Portion 2
Purpose: Livestock
Equipment: Solar submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Sodium Chloride
Main Constituents of Concern: Combination of Nitrite and Nitrate</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 30/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: None identified
Water Quality: Class 1</td><td>Data Quality Status: CBE 2.1%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 20/10/2020 (Sunny and clear (Heatwave) weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: Combination of Nitrite and Nitrate
Water Quality: Class 2</td><td>Data Quality Status: CBE 1.7%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: An increase in turbidity caused the change in water classification from Class 1 to Class 2. This is not identified as a parameter of concern as the water quality is marginal water quality and can be consumed without health effects by the majority of individuals except for sensitive individuals.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 13/01/2021 (Sunny)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: Combination of Nitrite and Nitrate
Water Quality: Class 2</td><td>Data Quality Status: CBE 2.3%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry has been consistent. Water quality class according to the Water Research Commission has been consistent since the second quarter.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

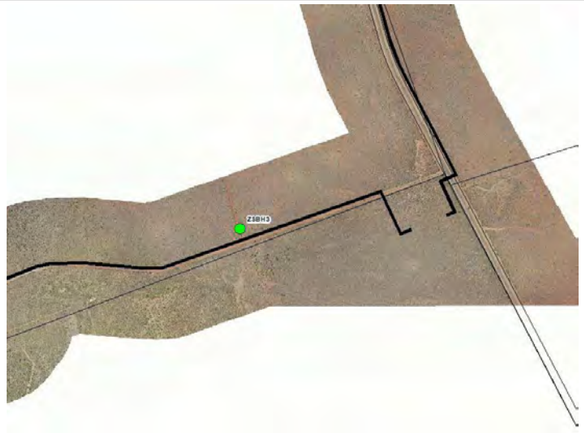
<table>
<tr><th colspan="3">ZNBH1</th></tr>
<tr><td colspan="2">Location: -23.769 / 27.4139
Elevation: 957
Farm: Zandnek 358 LQ
Portion: Portion 1
Purpose: Game
Equipment: Solar submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: 25.3 mbgl
Water Level Range: 24.63 – 25.83
Main Hydrochemistry: Sodium Chloride
Main Constituents of Concern: Turbidity, Combination of Nitrite and Nitrate</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 29/07/2020 (Sunny and clear weather)
Water Level: 25.83mbgl (static)
Hydrochemistry: Sodium Chloride
Constituents of Concern: None identified
Water Quality: Class 1</td><td>Data Quality Status: CBE -0.6%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment. Verify missing borehole data</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 20/10/2020 (Sunny and clear (Heatwave) weather)
Water Level: 25.68 mbgl
Hydrochemistry: Sodium Chloride Constituents of Concern: Combination of Nitrite and Nitrate
Water Quality: Class 3</td><td>Data Quality Status: CBE 0.4%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: An increase in turbidity caused the change in water classification from Class 1 to Class 3.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 12/01/2021 (Partly Cloudy)
Water Level: 24.63 mbgl (static)
Hydrochemistry: Sodium Chloride
Constituents of Concern: Turbidity, Combination of Nitrite and Nitrate
Water Quality: Class 3</td><td>Data Quality Status: CBE 4.2%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry has been consistent. Water quality class according to the Water Research Commission has been consistent since the second quarter. Turbidity has emerged as a constituent of concern, in addition to combination of nitrite and nitrate.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="3">ZNBH3</th></tr>
<tr><td colspan="2">Location: -23.7708 / 27.4144
Elevation: 954
Farm: Zandnek 358 LQ
Portion: Portion 1
Purpose: Game
Equipment: Submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: 25.3 mbgl
Water Level Range: N/A
Main Hydrochemistry: Sodium Chloride
Main Constituents of Concern: Combination of Nitrite and Nitrate</td><td>  </td><td> 
</td></tr>
<tr><td>First Quarter</td><td>Date Surveyed: 29/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: None identified
Water Quality: Class 2</td><td>Data Quality Status: CBE -1.3%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td>Date Surveyed: 20/10/2020 (Sunny and clear (Heatwave) weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Sodium Chloride
Constituents of Concern: None identified
Water Quality: Class 2</td><td>Data Quality Status: CBE 0.1%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: Water quality class according to the Water Research Commission has been consistent.</td></tr>
<tr><td>Third Quarter</td><td>Date Surveyed: 12/01/2021 (Partly Cloudy)
Water Level: 25.30 mbgl (static)
Hydrochemistry: Sodium Chloride
Constituents of Concern: Combination of Nitrite and Nitrate
Water Quality: Class 2</td><td>Data Quality Status: CBE -0.6%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry and water quality class according to the Water Research Commission has been consistent. Combined nitrate and nitrite have emerged as a constituent of concern.</td></tr>
<tr><td>Fourth Quarter</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="3">ZSBH3</th></tr>
<tr><td colspan="2">Location: -24.4277 / 27.3971
Elevation: 1104
Farm: Zondagskuil 130 KQ
Portion: Remaining Extent
Purpose: Domestic water supply and game
Equipment: Electric submersible
Analysis: Reduced SANS (241: 2015)

Water Level Average: N/A
Water Level Range: N/A
Main Hydrochemistry: Magnesium bicarbonate
Main Constituents of Concern: None</td><td>  </td><td>  </td></tr>
<tr><td>First Quarter</td><td colspan="2">Date Surveyed: 21/07/2020 (Sunny and clear weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium bicarbonate
Constituents of Concern (SANS 241: 2015): None identified
Water Quality: Class 1
Data Quality Status: CBE 2.4%
Limitations: Nitrate and nitrite was not assessed
Actions Required: Include nitrate in next assessment</td></tr>
<tr><td>Second Quarter</td><td colspan="2">Date Surveyed: 06/10/2020 (Overcast and rainy weather)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium bicarbonate
Constituents of Concern: None identified
Water Quality: Class 2
Data Quality Status: CBE -0.2%
Limitations: N/A
Actions Required: Assess third quarterly results for trends
Notes: An increase in turbidity caused the change in water classification from Class 1 to Class 2. This is not identified as a parameter of concern as the water quality is marginal water quality and can be consumed without health effects by the majority of individuals except for sensitive individuals.</td></tr>
<tr><td>Third Quarter</td><td colspan="2">Date Surveyed: 14/01/2021 (Sunny)
Water Level: Not assessed – Abstracting during site visit
Hydrochemistry: Magnesium bicarbonate
Constituents of Concern: None identified
Water Quality: Class 2
Data Quality Status: CBE 15.3%
Limitations: N/A
Actions Required: Assess fourth quarterly results for trends.
Notes: Hydrochemistry has been consistent. Water quality class according to the Water Research Commission has been consistent since the second quarter.</td></tr>
<tr><td>Fourth Quarter</td><td colspan="2"></td></tr>
</table>