

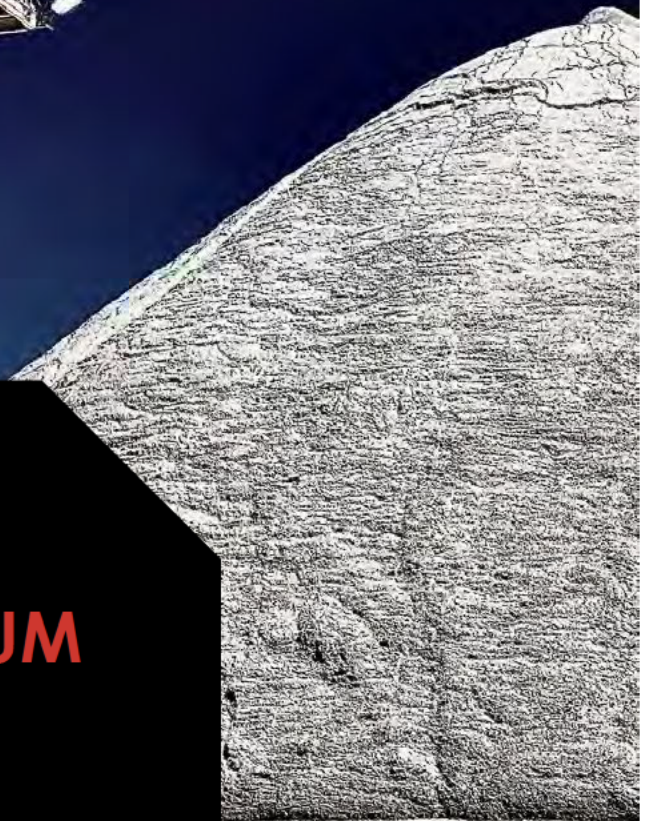


MOUNT MARION LITHIUM PROJECT

**ANNUAL
ENVIRONMENTAL REPORT
AND ANNUAL AUDIT
COMPLIANCE REPORT
2025**

MOUNT MARION

25/03/2026 VERSION 01



DOCUMENT INFORMATION

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Acknowledgement of Country

MinRes is committed to reconciliation and recognises and respects the significance of Aboriginal and Torres Strait Islander peoples' communities, cultures, and histories. MinRes acknowledges and respects Aboriginal and Torres Strait Islander peoples as the traditional custodians of the land.

TABLE OF CONTENTS

1.	Overview	1
2.	Compliance	2
3.	Discharge Monitoring	3
3.1	Tailings Discharge Monitoring Results	3
3.2	Dewatering	5
3.3	RO Brine	6
3.4	Water Used For Dust Suppression	6
3.5	WWTP Treated Effluent	9
3.6	Dust Deposition Gauges	10
4.	Groundwater Monitoring	11
4.1	Standing Water Level	11
4.2	Physicochemical parameters	13
5.	Monitoring of TSF Water Balance	15
	Attachment A – DWER 2025 Annual Audit Compliance Report	17
	Attachment B – Certificates of Analysis – Water used for Dust Suppression	18
	Attachment C – Certificates of Analysis – Wastewater – Treated Effluent	19

Figures

Figure 1: TN01 Dust Suppression Radiological Water Quality	7
Figure 2: TN04 Dust Suppression Radiological Water Quality	8
Figure 3: PB10 Dust Suppression Radiological Water Quality	8
Figure 4: Ghost Crab Piezometer Standing Water Level (mbgl) (2022-2025)	12
Figure 5: Ghost Crab Seepage Bore Standing Water Level (mbgl) (2024-2025)	12
Figure 6: Ghost Crab Seepage Bore Water Quality - Temperature	13
Figure 7: Ghost Crab Seepage Bore Water Quality – Electrical Conductivity	14

Tables

Table 1: Part V Licence Table 8: Annual Environmental Report	1
Table 2: Licence Non-Compliances Identified During the Reporting Period	2
Table 3: Tailings Production Statistics	4
Table 4: Tailings Production Statistics Previous Reporting Period (2024)	4
Table 5: Ghost Crab In-Pit TSF Decant Pond Monitoring	4
Table 6: Volume of Dewatering Water	5
Table 7: Water Used for Dust Suppression – Volume (kL)	6
Table 8: Water Used for Dust Suppression – Quality Analysis (Bq/L)	7
Table 9: WWTP Treated Effluent Quality	9
Table 10: Ghost Crab Piezo Bore Standing Water Levels (mbgl)	11
Table 11: Ghost Crab Seepage Bore Standing Water Levels (mbgl)	11
Table 12: Ghost Crab Seepage Bore Water Quality	13
Table 13: Water Balance for the Ghost Crab in-pit TSF	16

1. OVERVIEW

The Part V Licence L9037/2017/1 (the Licence), held by Mt Marion Lithium Management Pty Ltd (MMLM) a wholly owned subsidiary of Mineral Resources Limited (MinRes), is issued for the Mount Marion Lithium Project. The Licence was originally issued by the Department of Water and Environmental Regulation (DWER) on 27/06/2017, with one amendment to the Licence granted during the current reporting period, on 09/09/2025. A further amendment was granted on 18/02/2026.

This Annual Environmental Report (AER) addresses the requirement to report to the CEO of DWER no later than 30 March each year, for the reporting period 1 January 2025 to 31 December 2025, to satisfy the following conditions:

- **Condition 23** The Licence holder must,
 - (a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period, and
 - (b) prepare and submit to the CEO by no later than 30 March each year an Annual Audit Compliance Report (AACR) in the approved form.
- **Condition 26** The Licence holder must submit to the CEO by no later than 30 March each year, an Annual Environmental Report for that annual period for the conditions listed in Table 8, and which provides information in accordance with the corresponding requirement set out in Table 8.

A summary of the information included in this report as per Table 8 of the Licence is presented below (Table 1).

Table 1: Part V Licence Table 8: Annual Environmental Report

Condition	Requirement	AER Section
12	(a) Cumulative monthly volumes of water or tailings discharged and discharge location per year (b) Laboratory data sheets for WWTP treated effluent for quarterly monitoring (c) Quarterly quantitative dust deposition results (d) Tabulated data summary of monitoring results (e) An interpretation of monitoring data results including comparison to historical trends.	(a) Section 3.1 (b) Attachment C (c) Section 3.6 (d) Section 3 (e) Section 3
13	Tabulated groundwater monitoring data results and time series graphs for each monitoring well over a 4 year period.	Section 4
14	(a) Water balance monitoring data (b) An interpretation of monitoring data results including comparison to historical trends	Section 5

2. COMPLIANCE

In accordance with Condition 23, an audit of compliance to the conditions of the Licence for the reporting period was completed. Seven (7) minor non-compliances to Licence conditions have been identified and outlined in **Table 2** with detail provided in the appended Annual Audit Compliance Report (AACR), **Attachment A – DWER 2025 Annual Audit** Compliance Report.

Table 2: Licence Non-Compliances Identified During the Reporting Period

Condition	Date of Non-Compliance	Details of Non-Compliance
Condition 4	31/08/2025	Approximately 270 tonnes of coarse reject (tailings) material was placed within Waste Dump 7. This location is not an authorised disposal location or within the approved Prescribed Premises boundary.
Condition 8 (Table 5)	07/05/2025	Waste Water Treatment Plant (WWTP) units two and three returned effluent sample results of 11,000 cfu/100 ml, exceeding the required limit for Thermo-tolerant Coliforms (E.Coli) of <1,000 cfu/100 ml.
Condition 18	01/12/2025	Report providing the site-specific concentration ratios for Ra ²²⁶ , Ra ²²⁸ , Pb ²¹⁰ , gross alpha and gross beta was not submitted by the required date of 1 December 2025.
Condition 2 (Table 3)	22/01/2025	The multi spigot tailings infrastructure for Ghost Crab Pit TSF was not constructed within appropriate sized containment bunding.
Condition 1 (Table 2)	06/04/2025	In April 2025, survey of the Ghost Crab TSF tailings level confirmed a tailings height of 374.8 RL at Spigot 1, exceeding the approved freeboard limit (374 RL) by 0.8 m.
Condition 13 (Table 7)	31/12/2025	Quarterly pH sample not collected for prescribed monitoring bores MM24MB35, MM24MB36, MM24MB37 and MM24MB38, in Q4 2025.
Condition 12 (Table 6)	1/01/2025-31/12/2025	Monthly flowmeter data was not collected for water used for dust suppression from Turkey's Nest TN01 and TN04.

3. DISCHARGE MONITORING

This section presents discharge monitoring results in accordance with Condition 12 and Table 6 of the Licence.

3.1 TAILINGS DISCHARGE MONITORING RESULTS

Pipeline flowmeter and digital telemetry continuously monitor the volume of wet tailings sent to the Ghost Crab in-pit tailings storage facility (TSF). The weightometer on the conveyor to Hopper 25 records the total coarse rejects tonnage transferred to haul trucks for deposition within waste dumps.

During the reporting period:

- A total of 859,778 kL of fine rejects (wet tailings) were sent to the Ghost Crab in-pit TSF; and
- A total of 1,365,153 tonnes of coarse rejects were disposed of within active Waste Dumps, primarily Waste Dump 02.

Table 3 presents a summary of tailings production during the reporting period. **Table 4** presents a summary of the previous reporting period tailings production statistics for comparison.

Activity in the current reporting period highlighted a slight increase (4.9%) in total volume of wet tailings sent to the TSF, and a significant decrease (24.3%) in total volume of coarse rejects sent to Waste Dumps. These results reflect a decrease in plant throughput during the reporting period, and the adjustment to the plant processing strategy to achieve a higher grade of lithium spodumene product.

The level of the tailings decant pond is recorded monthly along with tailings levels. Five additional spigots were commissioned in November 2024. Tailings are now discharged to the TSF via multiple spigots, which are rotated to achieve an even rate of tailings rise within the facility. Levels of the TSF decant pond are reported in **Table 5**. During the reporting period the level of the decant pond increased slightly from 360.28 m RL to 366.56 m RL.

Table 3: Tailings Production Statistics

Parameter	Jan25	Feb25	Mar25	Apr25	May25	Jun25	Jul25	Aug25	Sep25	Oct25	Nov25	Dec25	Total
Volume of tailings (wet) (tonnes)	85,239	63,269	71,345	64,873	58,731	65,384	75,913	71,872	78,854	70,204	67,537	86,557	859,778
Volume of tailings (coarse rejects) (tonnes)	83,248	84,298	114,642	81,144	84,661	120,543	116,478	113,375	127,349	140,821	144,191	154,403	1,365,153

Table 4: Tailings Production Statistics Previous Reporting Period (2024)

Parameter	Jan24	Feb24	Mar24	Apr24	May24	Jun24	Jul24	Aug24	Sep24	Oct24	Nov24	Dec24	Total
Volume of tailings (wet) (tonnes)	54,728	55,141	58,891	56,614	59,605	67,647	62,404	80,162	70,878	82,835	88,002	82,724	819,631
Volume of tailings (coarse rejects) (tonnes)	163,093	165,253	167,453	153,853	167,414	184,599	161,736	195,603	176,881	93,682	83,642	90,078	1,803,287

Table 5: Ghost Crab In-Pit TSF Decant Pond Monitoring

Parameter	Jan25	Feb25	Mar25	Apr25	May25	Jun25	Jul25	Aug25	Sep25	Oct25	Nov25	Dec25
Level of the tailings decant pond in Ghost Crab Pit (m RHD)	360.28	364.03	363.81	364.16	364.20	364.30	365.25	365.66	365.65	365.82	366.43	366.56
Level of the tailings decant pond in Ghost Crab Pit (metres below lowest point of pit crest)	19.72	15.97	16.19	15.84	15.80	15.70	14.75	14.34	14.35	14.18	13.57	13.44

3.2 DEWATERING

During the reporting period, dewatering of Northern Pit occurred, being pumped to the TN04 Turkey's Nest and transferred via standpipe to water carts to carry out dust suppression activities. **Table 6** provides a summary of results from dewatering volumes during the reporting period.

Northern Pit dewatering volumes are recorded via flowmeter fitted to the mobile pump unit located within the pit. Monthly averages were determined by averaging readings taken upon commencement and completion of the dewatering process. A total of 225,549 kL dewater from Northern Pit was utilised for dust suppression during the reporting period. No dewatering occurred in the Northern Pit in December. Dewatering activities may recommence in the future based on the pit progression.

Compared to the previous reporting period, an increase of 149,265 kL in dewater discharge was observed (+96%). Increased dewatering activity is the result of the progression of mining in the Northern Pit, which now amalgamates both N4 and N7 pits.

During the reporting period there was no dewatering water from the Central Pit (C01).

Table 6: Volume of Dewatering Water

Parameter	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25	Total
Monthly volume (kL) of dewater from Central Pit (C01)	No dewatering from C01 during reporting period												
Monthly volume (kL) of dewater from Northern Pit (N4)	-	-	-	-	-	-	45,109	45,109	45,109	45,109	45,109	-	225,549

3.3 RO BRINE

The Reverse Osmosis (RO) plant was decommissioned in February of 2024. There is no reported discharge of RO brine for the reporting period.

3.4 WATER USED FOR DUST SUPPRESSION

Water used for dust suppression across the operation is sourced from the Mining Turkeys Nests TN01 and TN04, in addition to the PB10 standpipe fed directly by PB10. The flowmeter on TN01 malfunctioned in March 2025, and as such data was unavailable from this point forward.

Additionally, due to data transmission issues with flowmeter telemetry fitted to TN04 there are no available records to estimate the volume of water used for dust suppression from this source since the construction completion date of 3 April 2025. Non-compliances associated with recording volumes of water for dust suppression from TN01 and TN04 are captured in **Attachment A – DWER 2025 Annual Audit Compliance Report**.

In comparison to Q1 of the previous reporting period, there was a decrease in the volume of water used from TN01 for dust suppression from January – March with a total of 1,968 kL recorded. This preceded the utilisation of Northern Pit dewater for dust control in the active mine area; pumped into TN04 following the dewatering pipeline construction completion date of 29 July 2025.

A flowmeter was installed on the PB10 Standpipe on 12 February 2025, with a reading taken in March upon commencement of dewatering. An average volume of 85.097 kL was used monthly for dust suppression activities throughout the remainder of the reporting period.

Monthly volumes of water used for dust suppression are provided in **Table 7**.

Quality analysis results for dust suppression water used during the reporting period is provided in **Table 8**. Laboratory certificates of analysis are provided in **Attachment B – Certificates of Analysis – Water used for Dust Suppression**.

Radiological quality analysis results for TN01, TN04 and PB10 are presented in **Figure 1**, **Figure 2** and **Figure 3** respectively. Compared to historical data, the radionuclide content of TN01 water has generally reduced over the current reporting period. This is largely attributable to the addition of groundwater sourced from the Northwest Shear borefield which is lower in radionuclides than the Ghost Crab Pit and Woolubar Paleochannel borefield sources.

Radionuclide content in TN04 over Q3 and Q4 of the reporting period indicated an increase of Ra²²⁶ and Ra²²⁸ to 4.22 and 5.5 becquerels per litre (Bq/L) respectively and a marked decline in the level of gross alpha during the six months since construction. Radiological quality analysis results for PB10 indicates a slight increase in gross alpha of 2 Bq/L in Q3.

Table 7: Water Used for Dust Suppression – Volume (kL)

Source	Jan25	Feb25	Mar25	Apr25	May25	Jun25	Jul25	Aug25	Sep25	Oct25	Nov25	Dec25	Total
TN01	656	656	656	-	-	-	-	-	-	-	-	-	1,968 kL
TN04	No flowmeter data available												
PB10	-	-	-	85	85	85	85	85	85	85	85	85	766 kL

Table 8: Water Used for Dust Suppression – Quality Analysis (Bq/L)

Source	Parameter	Q1 - 12-Feb-25	Q2 - 06-May-25	Q3 - 12-Aug-25	Q4 - 3-Nov-25
TN01	Ra ²²⁶	0.844	0.844	0.844	0.844
	Ra ²²⁸	0.402	0.402	0.402	0.402
	Pb ²¹⁰	<0.19	<0.19	<0.19	<0.19
	Gross α	1.6	1.6	1.6	1.6
	Gross β	0.81	0.81	0.81	0.81
TN04	Ra ²²⁶	TN04 and supply pipeline construction completed 29 July 2025 (Q3)		2.53	4.22
	Ra ²²⁸			0.341	5.5
	Pb ²¹⁰			<0.38	0.174
	Gross α			8.82	2.63
	Gross β			1.83	1.96
PB10	Ra ²²⁶	0.393	0.713	0.864	0.669
	Ra ²²⁸	0.339	0.399	0.48	0.372
	Pb ²¹⁰	<0.21	<0.18	<0.35	<0.22
	Gross α	0.91	1.52	1.98	1.31
	Gross β	0.67	0.766	0.914	1.03

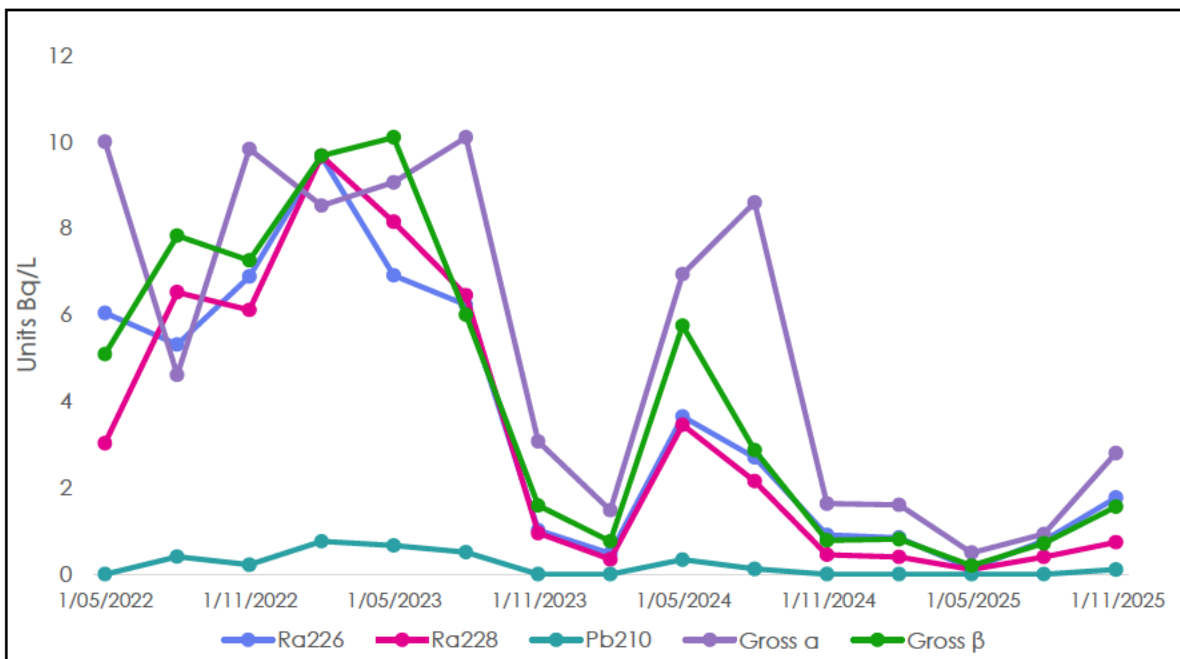


Figure 1: TN01 Dust Suppression Radiological Water Quality

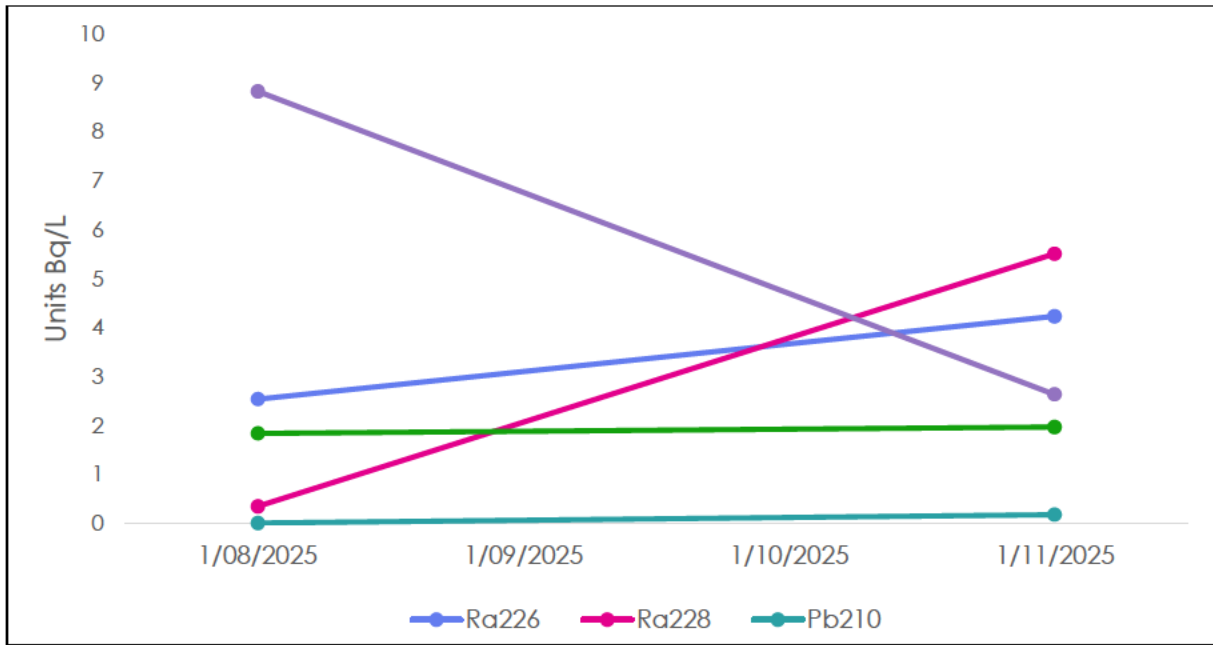


Figure 2: TN04 Dust Suppression Radiological Water Quality

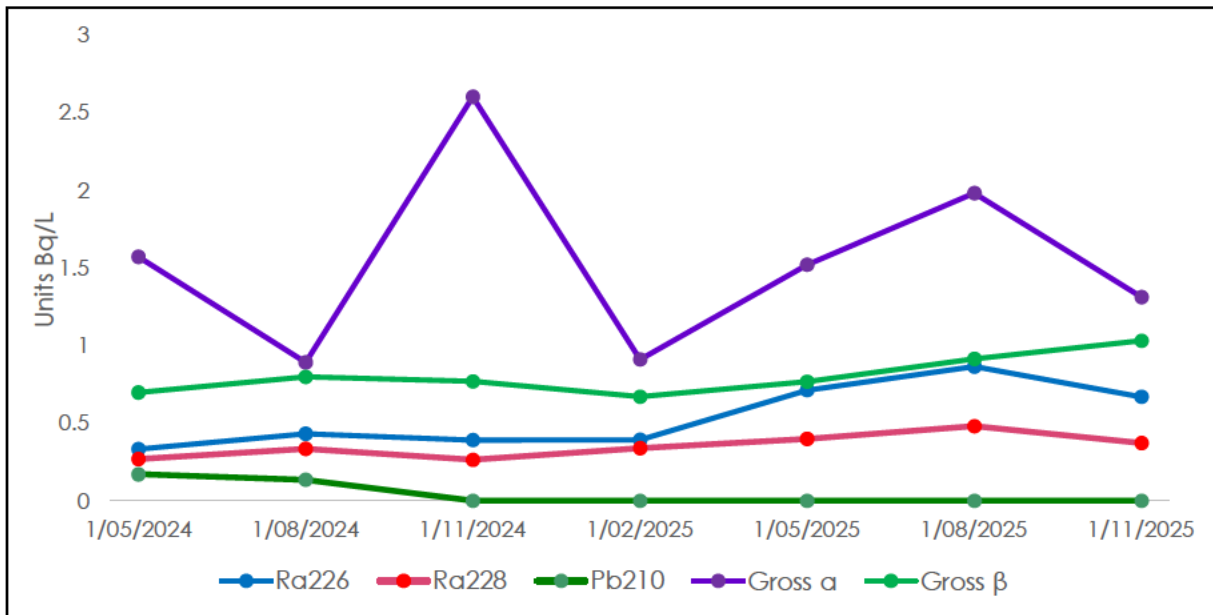


Figure 3: PB10 Dust Suppression Radiological Water Quality

3.5 WWTP TREATED EFFLUENT

The Mount Marion Waste Water Treatment Plant (WWTP) consists of three units that treat wastewater in parallel, a Submerged Aerated Filter (SAF) Unit, SAF Unit 1 (offline as of December 2024 due to the reduction in the total volume of wastewater treatment requirement), and two Sequence Batch Reactor (SBR) Units; SBR 1 (Unit 2) and SBR 2 (Unit 3). Treated effluent from the WWTP units is discharged directly to the irrigation spray field.

Results of Laboratory analysis during the reporting period are presented in **Table 9** with parameter exceedances highlighted in red. Laboratory certificates of analysis are provided in **Attachment C – Certificates of Analysis – Wastewater – Treated Effluent**. This non-compliance is detailed in **Attachment A – DWER 2025 Annual Audit Compliance Report**.

Treated effluent quality from the SBR units has stabilised below licence limits since the units came online in Q3 2024. This is with exception of *E.coli* exceedances across both units in Q2 of this reporting period. *E.coli* results decreased below the limit in follow up samples in Q3 and Q4 of this reporting year, indicating correct operation of the SBR units.

Table 9: WWTP Treated Effluent Quality

	Parameter	Limit	Q1	Q2	Q3	Q4
SBR 1 (Unit 2)	BOD (mg/L)	30	18	7.9	7.9	<5.0
	Total Suspended Solids (mg/L)	40	<5.0	<5.0	<5.0	5
	Total Nitrogen (mg/L)	50	11	17	16	18
	Total Phosphorous (mg/L)	12	10	6.5	7.7	0.8
	pH	6.5 - 8.5	7.9	7.9	7.8	7.8
	Thermotolerant Coliforms (cfu/100mL)	1000	<10	11,000	<10	10
SBR 2 (Unit 3)	BOD (mg/L)	30	18	9	6.8	<5.0
	Total Suspended Solids (mg/L)	40	8.5	18	8	<5.0
	Total Nitrogen (mg/L)	50	40	0.49	26	33
	Total Phosphorous (mg/L)	12	9.7	4.3	8.9	8.5
	pH	6.5 - 8.5	7.7	8	7.6	7.9
	Thermotolerant Coliforms (cfu/100mL)	1000	<10	11,000	<10	<10

3.6 DUST DEPOSITION GAUGES

Dust deposition gauges have been installed on site in accordance with Condition 12, Table 6. Monitoring of dust deposition was added as a new requirement in the Licence amendment approved on 09/09/2025. The gauges have been installed to monitor dust emissions from the crushing and screening mobile plant. The initial results are scheduled for Q1 of the 2026 reporting period. No mobile crushing or screening occurred during the 2025 reporting period.

4. GROUNDWATER MONITORING

This section presents discharge monitoring results in accordance with Condition 13 and Table 7 of the Licence.

4.1 STANDING WATER LEVEL

Standing Water Level (SWL) monitoring was undertaken throughout the reporting period as per Condition 13 of the Licence for the Ghost Crab Piezometer bores (MTMPZ1, MTMPZ2, MTMPZ4) and the four seepage monitoring bores (MM24MB35, MM24MB36, MM24MB37, MM24MB38) installed within the Ghost Crab Pit tailings storage area in November 2024.

Results of piezometer bore SWL monitoring during the reporting period are presented in **Table 10** and **Figure 4**, including extended readings from January 2022 to illustrate historic temporal trends in the absence of readings for MTMPZ1 and MTMPZ2 during the current reporting period.

Both MTMPZ1 and MTMPZ2 bores remained dry through the reporting period, as occurred in the two previous reporting periods. MTMPZ4 SWL has remained around 35-37 meters below ground level (mbgl) since September 2021. MTMPZ4 SWL results in September and October of the reporting period display an increased SWL in comparison to previous trends; it is suspected that these values are erroneous, caused by dipping technique in a narrow diameter casing. November SWL results for MTMPZ4 were consistent with the previous trend of stable depth to groundwater. The trends are expected to continue as the Ghost Crab Pit borefield remains a primary source of groundwater abstraction to meet operational requirements. MTMPZ4 was not sampled in December 2025 due to temporary access restrictions; the completed samples in October and November satisfy the quarterly standing water level monitoring frequency set out in Table 7 of the Licence.

Results of seepage bore SWL monitoring during the reporting period with respect to ground level and the condition set out in Table 2 of the Licence are presented in **1 Unable** to sample due to temporary access restrictions.

Table 11 and **Figure 5**.

Ghost Crab Pit seepage bore standing water levels decreased during the first quarter of 2025, continuing a trend post installation in November 2024. SWL results stabilised from March 2025 and continued this way for the remainder of the reporting period, with little variation throughout the remainder of the year. Results from the seepage and piezometer bores show no significant upward trends in groundwater levels.

Table 10: Ghost Crab Piezo Bore Standing Water Levels (mbgl)

Monitoring Location	Jan25	Feb25	Mar25	Apr25	May25	Jun25	Jul25	Aug25	Sep25	Oct25	Nov25	Dec25
MTMPZ1	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MTMPZ2	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MTMPZ4	36.73	36.89	36.87	36.99	37.04	37.07	37.11	37.09	30.88	28.3	37.04	- ¹

¹ Unable to sample due to temporary access restrictions.

Table 11: Ghost Crab Seepage Bore Standing Water Levels (mbgl)

Monitoring Location	Jan25	Feb25	Mar25	Apr25	May25	Jun25	Jul25	Aug25	Sep25	Oct25	Nov25	Dec25
MM24MB35	12.18	15.33	16.57	24.89	24.8	24.53	24.7	24.49	24.49	24.55	24.54	24.55
MM24MB36	24.43	27.03	27.91	27.99	28.85	29.1	29.17	29.15	29.18	29.18	29.18	29.58
MM24MB37	26.72	26.86	26.71	26.68	26.71	26.61	26.7	26.58	26.62	26.61	26.6	26.6

Monitoring Location	Jan25	Feb25	Mar25	Apr25	May25	Jun25	Jul25	Aug25	Sep25	Oct25	Nov25	Dec25
MM24MB38	28.82	27.52	28.04	27.62	28.39	28.39	28.75	29.32	29.16	29.25	29.29	29.38

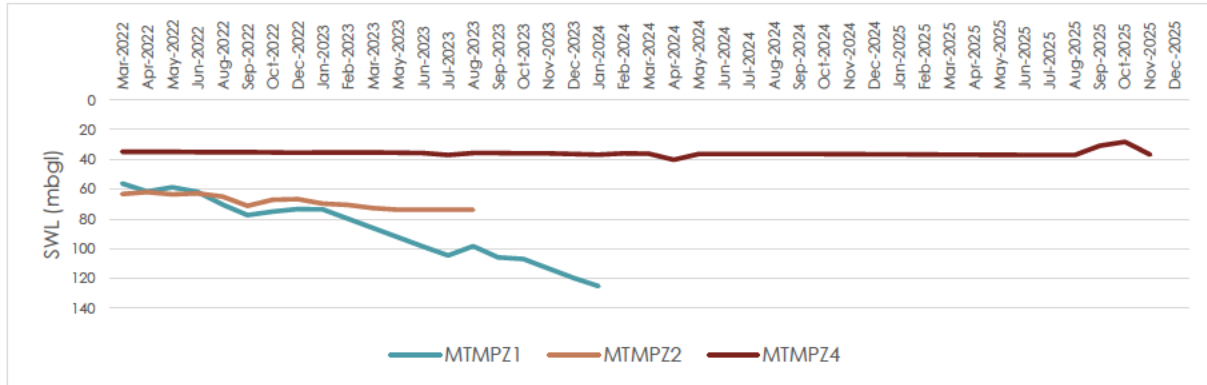


Figure 4: Ghost Crab Piezometer Standing Water Level (mbgl) (2022-2025)

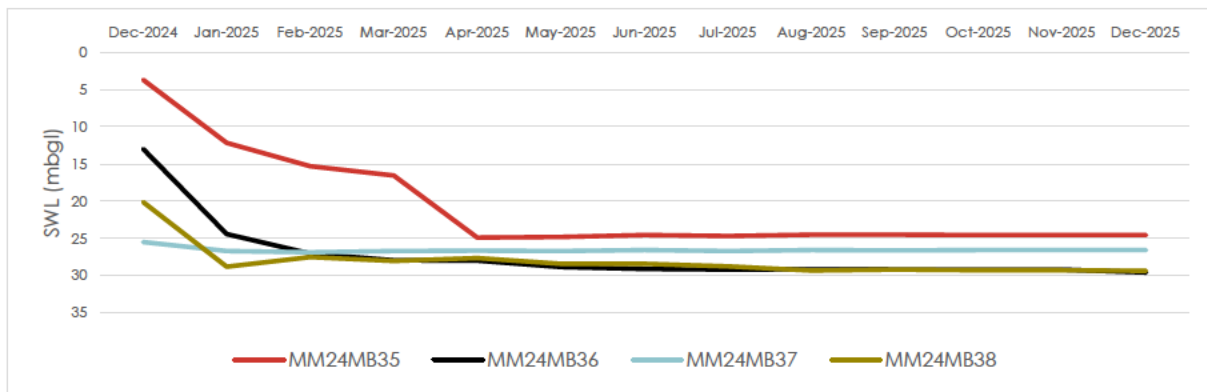


Figure 5: Ghost Crab Seepage Bore Standing Water Level (mbgl) (2024-2025)

4.2 PHYSICOCHEMICAL PARAMETERS

Water quality monitoring (electrical conductivity and temperature) was undertaken throughout the reporting period for the Ghost Crab Seepage bores (MM24MB35, MM24MB36, MM24MB37, MM24MB38), installed within the Ghost Crab Pit tailings storage area in November 2024. Field readings for pH were missed for the Q4 quarterly sampling following the additional licence condition being added in September 2025. This non-compliance is detailed in Section 2 and **Attachment A – DWER 2025 Annual Audit Compliance Report**.

Results of seepage bores water quality monitoring during the reporting period are presented in **Table 12**.

Table 12: Ghost Crab Seepage Bore Water Quality

Monitoring Location	Parameter	Jun-25	Sep-25	Dec-25
MM24MB35	EC (µS/cm)	32414	36917	39544
	pH	-	-	-
	Temp °C	22.66	22.65	22.65
MM24MB36	EC (µS/cm)	10135	10145	10036
	pH	-	-	-
	Temp °C	22.715	22.708	22.702
MM24MB37	EC (µS/cm)	3282	3320	3344
	pH	-	-	-
	Temp °C	21.98	21.97	21.96
MM24MB38	EC (µS/cm)	28987	33297	36043
	pH	-	-	-
	Temp °C	22.25	22.25	22.25

Monitoring of seepage bore water quality over the reporting period displays highly stable temperature readings, as displayed in **Figure 6**. No significant seasonal or operational influence on groundwater temperature was observed.

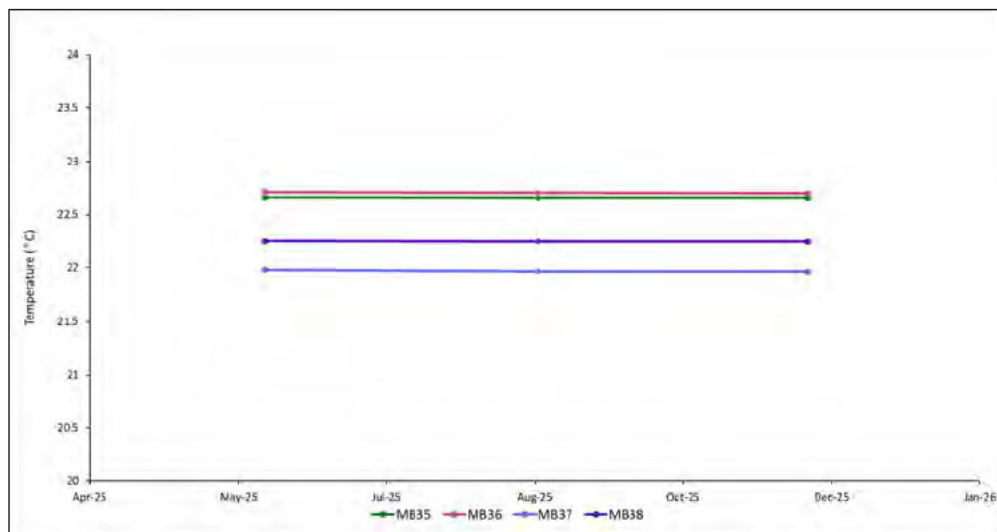


Figure 6: Ghost Crab Seepage Bore Water Quality - Temperature

Electrical conductivity results show clear variations between monitoring bores, as displayed in **Figure 7**. MM24MB35 recorded the highest EC values, increasing from 32,414 $\mu\text{S}/\text{cm}$ in June to 39,544 $\mu\text{S}/\text{cm}$ in December. MM24MB38 displayed similar results, rising from 28,987 $\mu\text{S}/\text{cm}$ to 36,043 $\mu\text{S}/\text{cm}$ over the same period.

MM24MB36 remained comparatively stable, with EC values close to 10,100 $\mu\text{S}/\text{cm}$ throughout monitoring, while MM24MB37 recorded the lowest EC values of approximately 3,300 $\mu\text{S}/\text{cm}$.

Conductivity results do not correspond with proximity of the bore to the Ghost Crab in-pit TSF, with MM24MB37 and MM24MB38 being located nearest to the facility. Results reflect the saline to hypersaline conditions typical of the local aquifer system, rather than facility impacts.

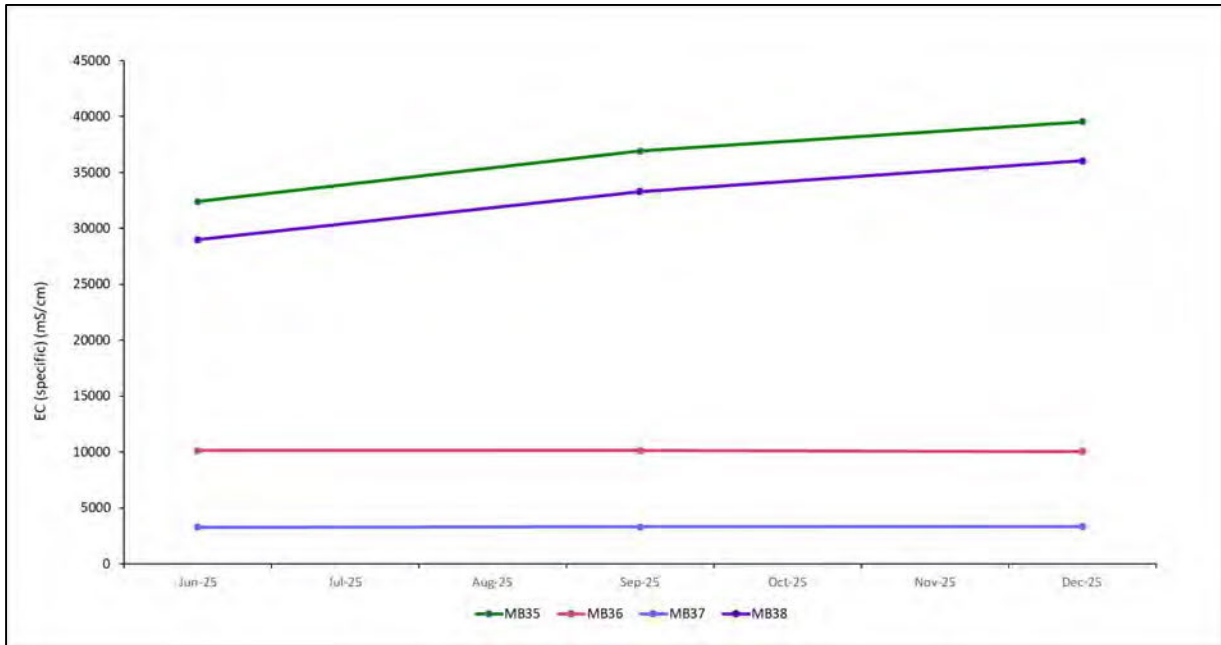


Figure 7: Ghost Crab Seepage Bore Water Quality – Electrical Conductivity

5. MONITORING OF TSF WATER BALANCE

This section presents a summary of the monitoring of tailings storage facility water balance in accordance with Condition 14 of the Licence. Water balance data includes site collected data and publicly available weather data from the Bureau of Meteorology (Kalgoorlie-Boulder Airport 012038) and is summarised in **Table 13**.

Total rainfall inflow to the TSF, determined by the total rainfall and surface area of the pit, was estimated to be 48,520 m³. No RO brine was discharge to the TSF during the reporting period, with the RO Plant decommissioned in February 2024. The primary source of water inflow to the Ghost Crab in-pit TSF is the water content of the tailings discharge, which totalled 1,582,366 m³ during the reporting period.

Outflow from the TSF occurs via solar evaporation of the TSF supernatant pond, through decant activities, and through seepage loss. Decant of the pond occurred throughout the reporting period and abstracted a total of 740,056 m³ during the period. Seepage occurs primarily from the pond as tailings acts as a retardant to seepage. A total 541,484 m³ estimated seepage losses were identified during the reporting period.

Table 13: Water Balance for the Ghost Crab in-pit TSF

	Notes	Units	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25
RAINFALL														
Site rainfall		mm	0	15	23	65	0	12	21	9	0	66	25	6
Pit Surface Area		m ²	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Rainfall Inflow Volume	1.0 Run-off coefficient	m ³	0	3,000	4,600	13,000	0	2,400	4,200	1,800	0	13,280	5,080	1,160
DEPOSITION														
Volume tailings deposited		dmt	85,239	63,269	71,345	64,873	58,731	65,384	75,913	71,872	78,854	70,204	67,537	86,557
Tailings solid content (w/w%)		%	35%	31%	36%	31%	28%	35%	37%	35%	37%	34%	40%	44%
Volume of water in tailings		m ³	158,301	140,825	126,836	144,395	151,023	121,427	130,934	131,095	132,328	133,679	101,277	110,247
RO BRINE														
Unit 1 Totalizer Reading		m ³	0	0	0	0	0	0	0	0	0	0	0	0
Unit 2 Totalizer Reading		m ³	0	0	0	0	0	0	0	0	0	0	0	0
Unit 1 Monthly Total		m ³	0	0	0	0	0	0	0	0	0	0	0	0
Unit 2 Monthly total		m ³	0	0	0	0	0	0	0	0	0	0	0	0
Volume of RO brine discharged to Ghost Crab in-pit TSF		m ³	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INFLOW		m³/month	158,301	143,825	131,436	157,395	151,023	123,827	135,134	132,895	132,328	146,959	106,357	111,407
Evaporation (From Pond and Tailings Beach)														
Monthly evaporation rate		mm	299	230	197	128	98	70	77	99	144	175	211	277
Pond Surface Area		m ²	35,000	35,000	23,500	23,500	23,500	20,000	16,200	25,000	25,000	10,000	10,000	10,000
Wet Beach Area	25% total beach area	m ²	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Dry Beach Area		m ²	115,000	115,000	126,500	126,500	126,500	130,000	133,800	125,000	125,000	140,000	140,000	140,000
Evaporation from Supernatant Pond	0.71 Pond Pan Factor (Kalgoorlie)	m ³	7,420	5,711	3,289	2,141	1,627	1,000	882	1,748	2,560	1,243	1,498	1,970
Evaporation from Wet Beach	0.5 Wet Beach Factor (Assumed)	m ³	7,465	5,745	4,928	3,208	2,438	1,760	1,918	2,463	3,605	4,375	5,275	6,935
Evaporation from Dry Beach	0.1 Wet Beach Factor (Assumed)	m ³	3,434	2,643	2,493	1,623	1,233	915	1,026	1,231	1,803	2,450	2,954	3,884
Total TSF Evaporation Outflow		m ³ /month	18,319	14,098	10,709	6,971	5,298	3,675	3,826	5,442	7,967	8,068	9,727	12,788
RETENTION														
In-situ Dry Density	2.6 Specific Gravity	t/m ³	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Volume Retained in Tailings (%/month)		%	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%
Volume Retained in Tailings (m3/month)		m ³ /month	24037	17842	20119	18294	16562	18438	21407	20268	22237	19798	19045	24409
DECANT														
Decant water recovery volume		m ³ /month	36,620	26,300	58,490	83,290	76,100	83,200	70,106	71,270	89,050	92,250	43,180	10,200
SEEPAGE														
Estimate of Seepage Losses		m ³	79,324	85,584	42,117	48,839	53,063	18,514	39,795	35,915	13,074	26,844	34,405	64,010
TOTAL OUTFLOW		m3/month	158,301	143,825	131,436	157,395	151,023	123,827	135,134	132,895	132,328	146,959	106,357	111,407
ASSUMED SUPERNATANT POND VOLUME		m3	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000

ATTACHMENT A – DWER 2025 ANNUAL AUDIT COMPLIANCE REPORT



Annual Audit Compliance Report Form

Environmental Protection Act 1986, Part V Division 3

Once completed, please submit this form either via email to info@dwer.wa.gov.au, or to the below postal address:

Department of Water and Environmental Regulation
Locked Bag 10
Joondalup DC WA 6919

Section A – Licence details			
Licence number:	L9037/2017/1	Licence file number:	DER2017/000308-1
Licence holder name:	Mt Marion Lithium Management Pty Ltd		
Trading as:	Mt Marion Lithium Management Pty Ltd		
ACN:	666 116 365		
Registered business address:	20 Walters Drive OSBORNE PARK WA 6017		
Reporting period:	01/01/2025 to 31/12/2025		

Section B – Statement of compliance with licence conditions
Did you comply with all of your licence conditions during the reporting period? (please tick the appropriate box)
<input type="checkbox"/> Yes – please complete: <ul style="list-style-type: none">section C;section D (if required); andsign the declaration in Section F.
<input checked="" type="checkbox"/> No – please complete: <ul style="list-style-type: none">section C;section D (if required);section E; andsign the declaration in Section F.

Section C – Statement of actual production	
Provide the actual production quantity for this reporting period. Supporting documentation is to be attached.	
Prescribed premises category	Actual production quantity
Category 5: Processing or beneficiation of metallic or non-metallic ores	3,303,162 wet metric tonnes
Category 6: Mine dewatering	225, 548 tonnes
Category 12: Screening etc. of material	0 tonnes
Category 54: Sewage facility, 100m ³ or more per day	54.26 m ³ / day
Category 57: Used tyre storage (general)	140 tyres
Category 64: Class II putrescible landfill	251.77 tonnes

Section C – Statement of actual production	
Provide the actual production quantity for this reporting period. Supporting documentation is to be attached.	
Prescribed premises category	Actual production quantity
Category 73: Bulk storage of chemicals etc.	LNG = Total 344.75 kL Tank Farm A (4 x 49.25 kL tanks) Tank farm B (3 x 49.25 kL tanks) Diesel = Total 554 kL Tank Farm C (3 x 110 kL tanks) Tank Farm D (3 x 57 kL + 1 x 53 kL tanks)
Category 85b: Water desalination plant	0 GL

Section D – Statement of actual Part 2 waste discharge quantity	
Provide the actual Part 2 waste discharge quantity for this reporting period. Supporting documentation is to be attached.	
Prescribed premises category	Actual Part 2 waste discharge quantity
Category 5: Processing or beneficiation of metallic or non-metallic ores	Coarse Rejects (to Waste Dumps) – 1,365,155 Tonnes Fine Rejects (to Ghost Crab in-pit TSF) – 859,778 tonnes
Category 6: Dewatering	225,548 tonnes
Category 85b: Water desalination plant	0 GL

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 4	Date(s) of non-compliance:	31/08/2025
Details of non-compliance:			
On 31 August 2025, 270 tonnes of coarse reject (tailings) material was placed within the confines of Waste Dump 7, outside of the authorised disposal locations and outside of the existing Prescribed Premises boundary.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
Nil			
Cause (or suspected cause) of non-compliance:			
Insufficient awareness of the coarse reject (tailings) approved disposal locations across different teams and non-compliance with internal MinRes Land Activity Permit process.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
An amendment to the Licence was approved on 18 February 2026, authorising Waste Dump 7 to receive coarse reject (tailings).			
Was this non-compliance previously reported to DWER? No			
<input type="checkbox"/> Yes, and			
<input type="checkbox"/> Reported to DWER verbally		Date: / /	
<input type="checkbox"/> Reported to DWER in writing		Date: / /	

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 8 (Table 5)	Date(s) of non-compliance:	7/05/2025
Details of non-compliance:			
On 7 May 2025, the WasteWater Treatment Plant (WWTP) effluent sample results returned a reading of 11,000 cfu/100 ml, exceeding the required limit for Thermo-tolerant Coliforms (<i>E. Coli</i>) of <1,000 cfu/100 ml.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
Negligible. The WWTP effluent was discharged to the approved sprayfield facility that is regularly maintained and inspected, fully fenced and restricting access to native fauna.			
Cause (or suspected cause) of non-compliance:			
Inadequate disinfection due to low chlorine levels is suspected to have caused <i>E. coli</i> readings above the approved quality limits.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Maintenance completed by site WWTP technician to increase chlorine dosage and subsequent free chlorine in the system. No further <i>E. coli</i> detections occurred during the reporting period.			
Was this non-compliance previously reported to DWER? No			
<input type="checkbox"/> Yes, and			
<input type="checkbox"/> Reported to DWER verbally		Date: / /	
<input type="checkbox"/> Reported to DWER in writing		Date: / /	

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 18	Date(s) of non-compliance:	01/12/2025
Details of non-compliance:			
Report providing the site-specific concentration ratios for Ra ²²⁶ , Ra ²²⁸ , Pb ²¹⁰ , gross alpha and gross beta was not submitted by 1 December 2025.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
Nil			
Cause (or suspected cause) of non-compliance:			
The scope of soil management plan and reporting was unable to be completed in the specified timeframe due to resourcing constraints.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Extension of the submission deadline to 30 June 2026 was approved in recent Licence amendment dated 18 February 2026.			
Was this non-compliance previously reported to DWER? No			
<input type="checkbox"/> Yes, and			
<input type="checkbox"/> Reported to DWER verbally		Date: / /	
<input type="checkbox"/> Reported to DWER in writing		Date:	

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 2 Table 3(Requirement 5)	Date(s) of non-compliance:	22/01/2025
Details of non-compliance:			
The multi spigot tailings infrastructure for Ghost Crab Pit TSF was not constructed within appropriate sized containment bunding.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
Nil.			
Cause (or suspected cause) of non-compliance:			
On-site ground conditions (large boulders and compacted clay subsurface) resulted in a near term change of design to the containment bund along the length of the tailings pipeline.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Containment infrastructure was completed with evidence provided in correspondence to DWER dated 24 February 2025.			
Was this non-compliance previously reported to DWER?			
<input checked="" type="checkbox"/> Yes, and			
<input type="checkbox"/> Reported to DWER verbally		Date: / /	
<input checked="" type="checkbox"/> Reported to DWER in writing		Date: 24/02/2025	

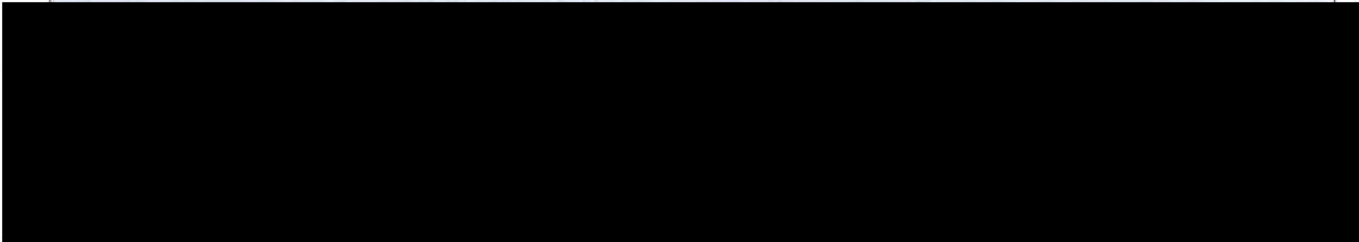
Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 1 (Table 2; Requirement 5)	Date(s) of non-compliance:	6/04/2025
Details of non-compliance:			
In April 2025, survey of the Ghost Crab TSF tailings level confirmed a tailings height of 374.8 RL at Spigot 1, exceeding the freeboard limit by 0.8 m.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
Nil.			
Cause (or suspected cause) of non-compliance:			
Communication through to processing team to include adequate controls.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Upon identification, deposition to Spigot 1 was immediately ceased and tailings redirected to other spigots. Recent Licence amendment dated 18 February 2026 now authorises a decrease in freeboard to “ <i>maximum tailings level must not exceed 0.5 m below the pit crest max.</i> ”			
Was this non-compliance previously reported to DWER? No			
<input type="checkbox"/> Yes, and			
<input type="checkbox"/> Reported to DWER verbally		Date: / /	
<input type="checkbox"/> Reported to DWER in writing		Date: / /	

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 13 (Table 7)	Date(s) of non-compliance:	31/12/2025
Details of non-compliance:			
Quarterly pH sample not collected for prescribed monitoring bores MM24MB35, MM24MB36, MM24MB37 and MM24MB38, in Q4 2025.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
Nil. Electronic conductivity loggers were present in the bore during this period, providing water quality data for the period, even though samples were not collected.			
Cause (or suspected cause) of non-compliance:			
Administrative error following licence amendment.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Monitoring schedules have been updated to include additional sampling requirements. A typographical error in the monitoring bore list for Condition 13 has been identified in the Licence. This will be rectified in a future license amendment.			
Was this non-compliance previously reported to DWER? No			
<input type="checkbox"/> Yes, and			
<input type="checkbox"/> Reported to DWER verbally		Date: / /	
<input type="checkbox"/> Reported to DWER in writing		Date: / /	
Section F – Declaration			

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 12	Date(s) of non-compliance:	Ongoing
Details of non-compliance:			
Monthly flowmeter data was not collected for water used for dust suppression from Turkey's Nest TN01 and TN04.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
Nil.			
Cause (or suspected cause) of non-compliance:			
The telemetry system installed on TN04 flowmeter is failing to transmit a signal to the receiver due to obstruction from a landform. Incorrect maintenance on TN01 flowmeter has caused the totalizer to fail.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Analogue flowmeter is being sourced for TN04 to overcome telemetry issues. A replacement flowmeter is being sourced for TN01.			
Was this non-compliance previously reported to DWER? No			
<input type="checkbox"/> Yes, and			
<input type="checkbox"/> Reported to DWER verbally		Date: / /	
<input type="checkbox"/> Reported to DWER in writing		Date: / /	
Section F – Declaration			

I / We declare that the information in this Annual Audit Compliance Report is true and correct and is not false or misleading in a material particular¹.

I / We consent to the Annual Audit Compliance Report being published on the Department of Water and Environmental Regulation's (DWER) website.



Date:	24/3/2026	Date:	
Seal (if signing under seal):			

¹ It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular.


² AACRs can only be signed by the licence holder or an authorised person with the legal authority to sign on behalf of the licence holder.

ATTACHMENT B – CERTIFICATES OF ANALYSIS – WATER USED FOR DUST SUPPRESSION



Certificate of Analysis PGB0878

Client Details

Client Process Minerals International Pty Ltd (PMI)
Contact 
Address 20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference Mount Marion - MTM Groundwater - Quarterly
Number of Samples 11 Water
Date Samples Received 13/02/2025
Date Instructions Received 13/02/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

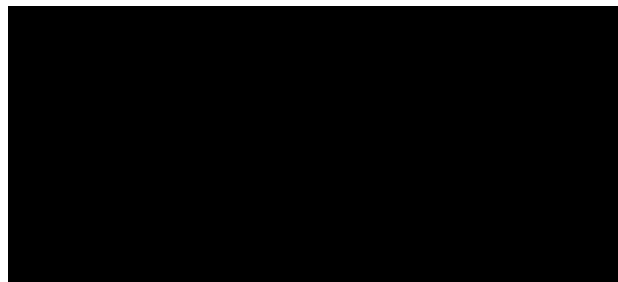
Date Results Requested by 16/04/2025
Date of Reissue 01/05/2025 - This report supercedes previous report, see amendment history for details

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By



Laboratory Manager

Certificate of Analysis PGB0878

Report Amendment History

Revision	Reason for Amendment
R-01	Updated to include Radiological data.

Certificate of Analysis PGB0878

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PGB0878-01	MTM-MB21MMN02B	Water	12/02/2025	13/02/2025
PGB0878-02	MTM-MB19MMC03	Water	12/02/2025	13/02/2025
PGB0878-03	MTM-MB21WRD02B	Water	12/02/2025	13/02/2025
PGB0878-04	MTM-PB06	Water	12/02/2025	13/02/2025
PGB0878-05	MTM-PB10	Water	12/02/2025	13/02/2025
PGB0878-06	MTM-PB12	Water	12/02/2025	13/02/2025
PGB0878-07	MTM-PRW-TN001	Water	12/02/2025	13/02/2025
PGB0878-08	MTM-PW-AMGWashbay	Water	12/02/2025	13/02/2025
PGB0878-09	MTM-WWTP-Stage2	Water	12/02/2025	13/02/2025
PGB0878-10	MTM-WWTP-Stage3	Water	12/02/2025	13/02/2025
PGB0878-11	Duplicate	Water	12/02/2025	13/02/2025

Sample Comments

General Comment	Free ice water was found to be surrounding samples within the esky(ies) provided; there is the potential for cross contamination.
MTM-PB06	Bottles labelled 'PB05'
MTM-PW-AMGWashbay	Bottles labelled 'AMG OWS'
MTM-WWTP-Stage2	Bottles labelled 'WWTP SBR1'
MTM-WWTP-Stage3	Bottles labelled 'WWTP SBR2'

Certificate of Analysis PGB0878

Volatile TRH and BTEX (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-08 MTM-PW-AMGW ashbay 12/02/2025
Date Sampled			
Total Xylene	µg/L		
TRH C6-C10 less BTEX (F1)	µg/L		
TRH C6-C9	µg/L	10	<10
TRH C6-C10	µg/L	10	<10
TRH C6-C10 less BTEX (F1)	µg/L	10	
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0
Benzene	µg/L	1.0	<1.0
Toluene	µg/L	1.0	<1.0
Ethylbenzene	µg/L	1.0	<1.0
meta+para Xylene	µg/L	2.0	<2.0
ortho-Xylene	µg/L	1.0	<1.0
Total +ve Xylenes	µg/L	1.0	
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0
Total +ve BTEX	µg/L	1.0	
<i>Surrogate Dibromofluoromethane</i>	%		<i>129</i>
<i>Surrogate Toluene-D8</i>	%		<i>101</i>
<i>Surrogate 4-Bromofluorobenzene</i>	%		<i>104</i>

Certificate of Analysis PGB0878

Semi-volatile TRH (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-08 MTM-PW-AMGW ashbay 12/02/2025
Date Sampled			
TRH C10-C14	µg/L	50	67
TRH C15-C28	µg/L	100	600
TRH C29-C36	µg/L	100	100
Total +ve TRH C10-C36	µg/L	50	
TRH >C10-C16	µg/L	50	150
TRH >C10-C16 less Naphthalene F2	µg/L	50	
TRH >C16-C34 (F3)	µg/L	100	570
TRH >C34-C40 (F4)	µg/L	100	<100
Total +ve TRH >C10-C40	µg/L	50	
<i>Surrogate o-Terphenyl</i>	%		78.1

Certificate of Analysis PGB0878

Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGB0878-01	PGB0878-02	PGB0878-03	PGB0878-09	PGB0878-10
Your Reference			MTM-MB21MMN 02B	MTM-MB19MMC 03	MTM-MB21WRD 02B	MTM-WWTP-Station ge2	MTM-WWTP-Station ge3
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025	12/02/2025
Phosphorus	mg/L	0.050	1.2	<0.050	<0.25 [4]	10	9.7

Envirolab ID	Units	PQL	PGB0878-11
Your Reference			Duplicate
Date Sampled			12/02/2025
Phosphorus	mg/L	0.050	<0.25 [4]

Certificate of Analysis PGB0878

Dissolved Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-01 MTM-MB21MMN 02B 12/02/2025	PGB0878-02 MTM-MB19MMC 03 12/02/2025	PGB0878-03 MTM-MB21WRD 02B 12/02/2025	PGB0878-11 Duplicate 12/02/2025
Silicon	mg/L	0.10	35	25	13	14
Silica*	mg/L	0.20	74	54	27	29

Certificate of Analysis PGB0878

Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-01 MTM-MB21MMN 02B	PGB0878-02 MTM-MB19MMC 03	PGB0878-03 MTM-MB21WRD 02B	PGB0878-04 MTM-PB06	PGB0878-05 MTM-PB10
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025	12/02/2025
Aluminium	mg/L	0.010	0.11	<0.010	<0.020	[NA]	[NA]
Arsenic	mg/L	0.0010	<0.0010	0.0057	<0.0020	[NA]	[NA]
Boron	mg/L	0.020	5.0	5.3	12	[NA]	[NA]
Barium	mg/L	0.0010	0.017	0.14	0.076	[NA]	[NA]
Beryllium	mg/L	0.00050	0.0048	<0.00050	<0.0010	[NA]	[NA]
Cadmium	mg/L	0.00010	0.00040	<0.00010	<0.00020	[NA]	[NA]
Cobalt	mg/L	0.0010	0.0058	0.019	0.032	[NA]	[NA]
Chromium	mg/L	0.0010	<0.0010	0.0010	<0.0020	[NA]	[NA]
Copper	mg/L	0.0010	<0.0010	0.0062	<0.0020	[NA]	[NA]
Iron	mg/L	0.010	940	0.035	35	[NA]	[NA]
Mercury	mg/L	0.000050	<0.000050	<0.000050	<0.000050	[NA]	[NA]
Lithium	mg/L	0.0010	2.3	0.81	1.0	[NA]	[NA]
Manganese	mg/L	0.0010	5.4	1.9	12	[NA]	[NA]
Molybdenum	mg/L	0.0010	<0.0010	0.0018	0.0030	[NA]	[NA]
Nickel	mg/L	0.0010	0.048	0.036	0.0084	[NA]	[NA]
Lead	mg/L	0.0010	<0.0010	<0.0010	<0.0020	[NA]	[NA]
Rubidium*	mg/L	0.0010	[NA]	[NA]	[NA]	0.16	1.5
Selenium	mg/L	0.0010	<0.0010	0.0016	<0.0020	[NA]	[NA]
Strontium	mg/L	0.0010	0.22	2.2	6.3	[NA]	[NA]
Thorium	mg/L	0.00050	[NA]	[NA]	[NA]	0.0041	0.0016
Titanium	mg/L	0.0010	<0.0010	<0.0010	<0.0020	[NA]	[NA]
Uranium	mg/L	0.0010	[NA]	[NA]	[NA]	0.094	0.047
Vanadium	mg/L	0.0010	<0.0010	0.0034	<0.0020	[NA]	[NA]
Zinc	mg/L	0.0010	23	0.055	0.0085	[NA]	[NA]

Envirolab ID Your Reference	Units	PQL	PGB0878-06 MTM-PB12	PGB0878-07 MTM-PRW-TN00 1	PGB0878-11 Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025
Aluminium	mg/L	0.010	[NA]	[NA]	<0.020
Arsenic	mg/L	0.0010	[NA]	[NA]	<0.0020
Boron	mg/L	0.020	[NA]	[NA]	12
Barium	mg/L	0.0010	[NA]	[NA]	0.077
Beryllium	mg/L	0.00050	[NA]	[NA]	<0.0010
Cadmium	mg/L	0.00010	[NA]	[NA]	<0.00020
Cobalt	mg/L	0.0010	[NA]	[NA]	0.033
Chromium	mg/L	0.0010	[NA]	[NA]	<0.0020
Copper	mg/L	0.0010	[NA]	[NA]	<0.0020
Iron	mg/L	0.010	[NA]	[NA]	35
Mercury	mg/L	0.000050	[NA]	[NA]	<0.000050
Lithium	mg/L	0.0010	[NA]	[NA]	1.0
Manganese	mg/L	0.0010	[NA]	[NA]	12
Molybdenum	mg/L	0.0010	[NA]	[NA]	0.0032
Nickel	mg/L	0.0010	[NA]	[NA]	0.0088
Lead	mg/L	0.0010	[NA]	[NA]	<0.0020
Rubidium*	mg/L	0.0010	0.10	1.4	[NA]

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-06 MTM-PB12	PGB0878-07 MTM-PRW-TN00 1	PGB0878-11 Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025
Selenium	mg/L	0.0010	[NA]	[NA]	<0.0020
Strontium	mg/L	0.0010	[NA]	[NA]	6.4
Thorium	mg/L	0.00050	<0.00050	0.00059	[NA]
Titanium	mg/L	0.0010	[NA]	[NA]	<0.0020
Uranium	mg/L	0.0010	0.0058	0.051	[NA]
Vanadium	mg/L	0.0010	[NA]	[NA]	<0.0020
Zinc	mg/L	0.0010	[NA]	[NA]	0.0074

Certificate of Analysis PGB0878

Inorganics - Physical Parameters (Water)

Envirolab ID	Units	PQL	PGB0878-01	PGB0878-02	PGB0878-03	PGB0878-08	PGB0878-09
Your Reference			MTM-MB21MMN 02B	MTM-MB19MMC 03	MTM-MB21WRD 02B	MTM-PW-AMGW ashbay	MTM-WWTP-Station ge2
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025	12/02/2025
pH	pH units		5.6	7.4	6.8	8.3	7.9
Electrical Conductivity	µS/cm	2.0	19000	22000	53000	29000	[NA]
Total Dissolved Solids	mg/L	5.0	14000	14000	40000	[NA]	[NA]
Total Suspended Solids	mg/L	5.0	480	46	71	[NA]	<5.0
Turbidity	NTU	0.10	460 [12]	12	320 [12]	[NA]	[NA]
Turbidity (filtered)*	NTU	0.10	220 [12]	0.43	250 [12]	[NA]	[NA]
Colour (True)	PCU	5.0	560	12	580	[NA]	[NA]

Envirolab ID	Units	PQL	PGB0878-10	PGB0878-11
Your Reference			MTM-WWTP-Station ge3	Duplicate
Date Sampled			12/02/2025	12/02/2025
pH	pH units		7.7	6.8
Electrical Conductivity	µS/cm	2.0	[NA]	54000
Total Dissolved Solids	mg/L	5.0	[NA]	38000
Total Suspended Solids	mg/L	5.0	8.5	92
Turbidity	NTU	0.10	[NA]	320 [12]
Turbidity (filtered)*	NTU	0.10	[NA]	260 [12]
Colour (True)	PCU	5.0	[NA]	470

Certificate of Analysis PGB0878

Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-01 MTM-MB21MMN 02B	PGB0878-02 MTM-MB19MMC 03	PGB0878-03 MTM-MB21WRD 02B	PGB0878-11 Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	36	920	270	270
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	36	920	270	270
Chloride	mg/L	1.0	5400	7200	22000	22000
Sulfate	mg/L	1.0	4600	2100	3500	3400
Calcium	mg/L	0.50	130	200	280	290
Magnesium	mg/L	0.50	510	820	1500	1500
Potassium	mg/L	0.50	46	54	240	240
Sodium	mg/L	0.50	2900	3400	11000	12000
Hardness (calc) equivalent CaCO3	mg/L	3.0	2400	3900	6700	6800
Ionic Balance	%		-18	-7.7	-6.7	-3.5

Certificate of Analysis PGB0878

Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGB0878-01	PGB0878-02	PGB0878-03	PGB0878-11
Your Reference			MTM-MB21MMN 02B	MTM-MB19MMC 03	MTM-MB21WRD 02B	Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Fluoride	mg/L	0.10	1.1	0.93	0.51	0.49

Certificate of Analysis PGB0878

Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGB0878-01	PGB0878-02	PGB0878-03	PGB0878-11
Your Reference			MTM-MB21MMN 02B	MTM-MB19MMC 03	MTM-MB21WRD 02B	Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Ferrous Iron	mg/L	0.050	860	<0.050	39	38

Certificate of Analysis PGB0878

Inorganics - Nutrients (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-01 MTM-MB21MMN 02B	PGB0878-02 MTM-MB19MMC 03	PGB0878-03 MTM-MB21WRD 02B	PGB0878-09 MTM-WWTP-Station ge2	PGB0878-10 MTM-WWTP-Station ge3
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025	12/02/2025
Ammonia as N	mg/L	0.0050	0.20	0.042	0.23	[NA]	[NA]
Nitrate as N	mg/L	0.0050	<0.10 [3]	0.15	<0.10 [3]	[NA]	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	<0.40 [3]	0.68	<0.40 [3]	[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.10 [3]	0.064	<0.10 [3]	[NA]	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	<0.40 [3]	0.21	<0.40 [3]	[NA]	[NA]
NOx as N	mg/L	0.0050	<0.10 [3]	0.22	<0.10 [3]	[NA]	[NA]
TKN as N by calculation	mg/L	0.10	0.65	0.58	0.40	[NA]	[NA]
Total Nitrogen	mg/L	0.10	0.65	0.80	0.40	11	40
Phosphate as P	mg/L	0.0050	<0.050 [3]	0.029	<0.10 [3]	[NA]	[NA]

Envirolab ID Your Reference	Units	PQL	PGB0878-11 Duplicate
Date Sampled			12/02/2025
Ammonia as N	mg/L	0.0050	0.16
Nitrate as N	mg/L	0.0050	<0.10 [3]
Nitrate as NO3 by calculation	mg/L	0.020	<0.40 [3]
Nitrite as N	mg/L	0.0050	<0.10 [3]
Nitrite as NO2 by calculation	mg/L	0.020	<0.40 [3]
NOx as N	mg/L	0.0050	<0.10 [3]
TKN as N by calculation	mg/L	0.10	0.56
Total Nitrogen	mg/L	0.10	0.56
Phosphate as P	mg/L	0.0050	<0.050 [3]

Certificate of Analysis PGB0878

Inorganics - Common Wastewater Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-08 MTM-PW-AMGW ashbay	PGB0878-09 MTM-WWTP-Sta ge2	PGB0878-10 MTM-WWTP-Sta ge3
Date Sampled			12/02/2025	12/02/2025	12/02/2025
BOD	mg/L	5.0	[NA]	18	18
MBAS	mg/L	0.10	1.2	[NA]	[NA]

Certificate of Analysis PGB0878

Microbiological Suite (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-09 MTM-WWTP-Station ge2	PGB0878-10 MTM-WWTP-Station ge3
Date Sampled			12/02/2025	12/02/2025
Thermotolerant Coliforms	cfu/100mL	1	<10	<10
E.coli	cfu/100mL	1	<10	<10

Certificate of Analysis PGB0878

Subcontracted Radiological - Certificate: ME370608 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGB0878-04	PGB0878-05	PGB0878-06	PGB0878-07
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12	MTM-PRW-TN00 1
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Gross alpha	Bq/L		9.2	0.91	0.5	1.6
Gross beta	Bq/L		14	0.67	0.081	0.81
Lead-210	Bq/L		1.16	<0.21	<0.15	<0.19
Radium 226	Bq/L		12.3	0.393	<0.036	0.844
Radium 228	Bq/L		12.6	0.339	<0.079	0.402

Certificate of Analysis PGB0878

Subcontracted Radiological - Potassium 40 - Certificate: ME370608 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGB0878-04	PGB0878-05	PGB0878-06	PGB0878-07
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12	MTM-PRW-TN00 1
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Potassium-40	Bq/L		8.1	7.6	0.74	7.4

Certificate of Analysis PGB0878

Result Comments

Identifier	Description
[3]	PQL(s) has/have been raised due to matrix interference.
[4]	PQL has been raised due to matrix requiring dilution
[12]	sample is coloured and cloudy

Certificate of Analysis PGB0878

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-021	Methylene Blue Active Substances - determined colorimetrically, based on APHA latest edition, Method 5540-C. Solid samples extracted with water.
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG-026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-091	BOD and/or cBOD - Analysed in accordance with APHA latest edition 5210 D.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
MICRO-001B	E. coli/Thermotolerant coliforms: Microbial Water Analysis - in accordance with MICRO-001 (AS4276.5-latest edition). Recommended maximums based on NHMRC Australian Drinking Water Guidelines. Please note that results for this test derived from counts outside of the range 10-80 are considered approximate as per AS4276.1.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).

Certificate of Analysis PGB0878

Method Summary

Method ID	Methodology Summary
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGB0878

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGB0878

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGB0878

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	Mount Marion - MTM Groundwater - Quarterly
Date Issued	01/05/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	No	Duplicate Outliers Exist - See detailed list below
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGB0878

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Water	8	12/02/2025	18/02/2025	19/02/2025	Yes
sTRH Water	8	12/02/2025	18/02/2025	20/02/2025	Yes
Total Phosphorus Water	1	12/02/2025	17/02/2025	18/02/2025	Yes
	2, 9-10	12/02/2025	17/02/2025	19/02/2025	Yes
	3, 11	12/02/2025	17/02/2025	20/02/2025	Yes
Dissolved Metals Water	1-2	12/02/2025	17/02/2025	17/02/2025	Yes
	3, 11	12/02/2025	17/02/2025	18/02/2025	Yes
Dissolved Metals (LL) Water	4-7	12/02/2025	04/03/2025	04/03/2025	Yes
	1-3, 11	12/02/2025	17/02/2025	17/02/2025	Yes
Dissolved Metals (LL)-Hg Water	1-3, 11	12/02/2025	19/02/2025	19/02/2025	Yes
Colour-True Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
EC Water	1-3, 8, 11	12/02/2025	14/02/2025	14/02/2025	Yes
pH Water	1-3, 8-11	12/02/2025	14/02/2025	14/02/2025	No
TDS Water	1-3, 11	12/02/2025	25/02/2025	25/02/2025	No
TSS Water	1-3, 11	12/02/2025	25/02/2025	25/02/2025	No
	9-10	12/02/2025	25/02/2025	26/02/2025	No
Turbidity Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Turbidity (filtered) Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Alkalinity Suite Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Chloride Water	1-3, 11	12/02/2025	17/02/2025	17/02/2025	Yes
Dissolved Cations Water	1-2	12/02/2025	17/02/2025	17/02/2025	Yes
	3, 11	12/02/2025	17/02/2025	18/02/2025	Yes
Ion Balance Water	1-3, 11	12/02/2025	17/02/2025	21/02/2025	Yes
Sulfate Water	1-3, 11	12/02/2025	17/02/2025	17/02/2025	Yes
Fluoride Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Ferrous Iron Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - Ammonia Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - Nitrate Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - Nitrite Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - NOx Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - Total N Water	1-3, 9-11	12/02/2025	18/02/2025	18/02/2025	Yes
Phosphate as P Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
TKN as N calc Water	1-3, 11	12/02/2025	17/02/2025	21/02/2025	Yes
BOD Water	9-10	12/02/2025	04/03/2025	05/03/2025	Yes
MBAS Water	8	12/02/2025	13/02/2025	14/02/2025	Yes
E. coli & T.T.coli Water	9-10	12/02/2025	13/02/2025	13/02/2025	Yes
Gross alpha & beta Water	4-7	12/02/2025	18/02/2025	26/03/2025	Yes
Lead 210 Water	4-7	12/02/2025	18/02/2025	26/03/2025	Yes

Data Quality Assessment Summary PGB0878

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Radium 226 & 228 Water	4-7	12/02/2025	18/02/2025	26/03/2025	Yes
GROSS_ALPHA_BETA_SGS Water	4-7	12/02/2025	18/02/2025	26/03/2025	Yes

Outliers: Duplicates

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGB4137

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BGB4137-DUP2#	DUP2	Total Suspended Solids	20.00	200[5]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGC0199

Sample ID	Duplicate ID	Analyte	% Limits	RPD
PGB0878-04	DUP1	Thorium	20.00	54.8[6]

Data Quality Assessment Summary PGB0878

Outliers: Matrix Spike

METALS-020 | Dissolved Metals (Water) | Batch BGB2793

Sample ID	Analyte	% Limits	% Recovery
BGB2793-MS1#	Silicon	70 - 130	##[1]

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGB2793

Sample ID	Analyte	% Limits	% Recovery
BGB2793-MS1#	Calcium	70 - 130	##[1]
BGB2793-MS1#	Magnesium	70 - 130	##[1]
BGB2793-MS1#	Potassium	70 - 130	##[1]
BGB2793-MS1#	Sodium	70 - 130	##[1]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGB2792

Sample ID	Analyte	% Limits	% Recovery
BGB2792-MS1#	Boron	70 - 130	##[1]
BGB2792-MS1#	Iron	70 - 130	##[1]
BGB2792-MS1#	Strontium	70 - 130	##[1]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGC0199

Sample ID	Analyte	% Limits	% Recovery
PGB0878-05	Rubidium	70 - 130	##[1]

Outliers: QC Frequency

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGC0301

Analysis	QC Type	Expected	Reported
BOD	Duplicate	2	0

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGB3097

Analysis	QC Type	Expected	Reported
VTRH&MBTEXN	Duplicate	2	0
	Matrix Spike	1	0

Quality Control PGB0878

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGB3097

Analyte	Units	PQL	Blank	LCS %
Total Xylene	µg/L		<3.0	[NA]
TRH C6-C10 less BTEX (F1)	µg/L		<10	[NA]
TRH C6-C9	µg/L	10	<10	91.4
TRH C6-C10	µg/L	10	<10	97.9
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	[NA]
Benzene	µg/L	1.0	<1.0	106
Toluene	µg/L	1.0	<1.0	109
Ethylbenzene	µg/L	1.0	<1.0	99.8
meta+para Xylene	µg/L	2.0	<2.0	101
ortho-Xylene	µg/L	1.0	<1.0	101
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	[NA]
Surrogate Dibromofluoromethane	%		121	101
Surrogate Toluene-D8	%		99.7	104
Surrogate 4-Bromofluorobenzene	%		100	98.0

ORG-020 | Semi-volatile TRH (Water) | Batch BGB2973

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2973-DUP1# Samp QC RPD %	BGB2973-DUP2# Samp QC RPD %		
TRH C10-C14	µg/L	50	<50	<50 <50 [NA]	577 511 12.1	74.8	92.6
TRH C15-C28	µg/L	100	<100	<100 <100 [NA]	9570 9880 3.19	96.1	110
TRH C29-C36	µg/L	100	<100	<100 <100 [NA]	1160 1010 13.7	108	122
TRH >C10-C16	µg/L	50	<50	<50 <50 [NA]	1610 1570 2.87	80.2	98.9
TRH >C16-C34 (F3)	µg/L	100	<100	<100 <100 [NA]	9510 9720 2.15	98.4	111
TRH >C34-C40 (F4)	µg/L	100	<100	<100 <100 [NA]	434 286 [NA]	103	115
Surrogate o-Terphenyl	%		99.1	76.8 100	## ## [NA] [2]	75.2	95.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Water) | Batch BGB2834

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2834-DUP1# Samp QC RPD %	BGB2834-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	<0.050 <0.050 [NA]	<0.25 <0.25 [NA] [4]	106	95.7

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Water) | Batch BGB2835

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGB0878-02 Samp QC RPD %	BGB2835-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	<0.050 <0.050 [NA]	0.0713 0.0632 [NA]	120	98.9

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGB2793

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2793-DUP1# Samp QC RPD %	BGB2793-DUP2# Samp QC RPD %		
Silicon	mg/L	0.1		8.42 8.46 0.440	27.0 26.3 2.68	96.5	## [1]
Silica	mg/L	0.20	<0.20	18.0 18.1 0.440	57.8 56.3 2.68	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGB0878

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGB2792

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2792-DUP1#	BGB2792-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	99.3	104
Arsenic	mg/L	0.0010	<0.0010	0.00119 0.00113 [NA]	<0.0010 <0.0010 [NA]	103	107
Barium	mg/L	0.0010	<0.0010	0.0508 0.0513 1.04	0.0416 0.0414 0.581	100	97.4
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	95.5	98.8
Boron	mg/L	0.020	<0.020	3.10 3.25 4.80	0.0630 0.0513 [NA] [6]	98.7	##[1]
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.00010 <0.00010 [NA]	105	102
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	99.6	102
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00150 0.00153 [NA]	101	97.5
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00820 0.00836 1.97	99.8	92.2
Iron	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	107	##[1]
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	103	91.6
Lithium	mg/L	0.0010	<0.0010	0.0230 0.0236 2.54	0.00118 0.00112 [NA]	101	96.3
Manganese	mg/L	0.0010	<0.0010	0.0771 0.0804 4.17	0.0841 0.0846 0.680	98.1	96.0
Molybdenum	mg/L	0.0010	<0.0010	0.0269 0.0267 0.971	<0.0010 <0.0010 [NA]	105	122
Nickel	mg/L	0.0010	<0.0010	0.00181 0.00194 [NA]	0.0140 0.0141 1.35	99.5	92.4
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00200 0.00203 [NA]	109	101
Strontium	mg/L	0.0010	<0.0010	5.65 5.83 3.05	0.0783 0.0789 0.731	99.8	##[1]
Titanium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	99.9	106
Vanadium	mg/L	0.0010	<0.0010	0.00352 0.00369 [NA]	<0.0010 <0.0010 [NA]	100	107
Zinc	mg/L	0.0010	<0.0010	0.00161 0.00185 [NA]	0.0520 0.0529 1.56	102	92.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGB3181

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB3181-DUP1#	BGB3181-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	103	87.6

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGC0199

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				PGB0878-04		
				Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.158 0.161 1.69	103	##[1]
Thorium	mg/L	0.00050	<0.00050	0.00407 0.00232 54.8 [6]	96.2	84.2
Uranium	mg/L	0.0010	<0.0010	0.0939 0.0916 2.51	104	86.7

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGB2275

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGB2275-DUP1#	PGB0878-11	
				Samp QC RPD %	Samp QC RPD %	
pH	pH units		5.7	8.1 8.0 0.373	6.8 6.8 0.00	102
Electrical Conductivity	µS/cm	2.0	<2.0	402 403 0.248	54200 54100 0.115	107

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGB0878

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGB2321

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGB2321-DUP1# Samp QC RPD %	PGB0878-02 Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	<5.0 <5.0 [NA]	12.0 12.7 [NA]	85.6

Analyte	Units	PQL	Blank			LCS %
Colour (True)	PCU	5.0	<5.0			[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGB2514

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGB2514-DUP1# Samp QC RPD %	PGB0878-01 Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	2.92 2.84 2.78	464 461 0.649	91.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGB2516

Analyte	Units	PQL	Blank	DUP1			LCS %
				PGB0878-01 Samp QC RPD %			
Turbidity (filtered)	NTU	0.10	<0.10	218 212 2.79			91.5

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGB4136

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGB0878-01 Samp QC RPD %	BGB4136-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	13600 13400 1.33	250 246 1.61	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGB4137

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGB0878-01 Samp QC RPD %	BGB4137-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	482 487 1.03	INS INS 200 [5]	95.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGB4336

Analyte	Units	PQL	Blank	DUP1			LCS %
				BGB4336-DUP1# Samp QC RPD %			
Total Suspended Solids	mg/L	5.0	<5.0	75.0 79.0 5.19			95.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGB2275

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGB2275-DUP1# Samp QC RPD %	PGB0878-11 Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	20.6 20.3 [NA]	272 266 2.53	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	20.6 20.3 [NA]	272 266 2.53	98.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGB0878

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGB2639

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGB0878-01 Samp QC RPD %	BGB2639-DUP2# Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	5430 5430 0.000441	150 150 0.193	100	93.1
Sulfate	mg/L	1.0	<1.0	4570 4570 0.182	<1.0 <1.0 [NA]	98.4	117

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGB2793

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2793-DUP1# Samp QC RPD %	BGB2793-DUP2# Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	486 484 0.338	8.26 8.07 2.36	82.4	##[1]
Magnesium	mg/L	0.50	<0.50	392 390 0.535	15.7 15.1 3.68	88.9	##[1]
Potassium	mg/L	0.50	<0.50	74.8 75.6 1.04	3.46 3.25 6.16	91.6	##[1]
Sodium	mg/L	0.50	<0.50	4980 4950 0.725	126 123 2.69	84.9	##[1]
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	2830 2810 0.450	85.1 82.3 3.36	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGB2273

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2273-DUP1# Samp QC RPD %	BGB2273-DUP2# Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	<0.10 <0.10 [NA]	8.59 8.30 3.36	111	117

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGB2312

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2312-DUP1# Samp QC RPD %	BGB2312-DUP2# Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	4.32 4.38 1.36	<0.050 <0.050 [NA]	115	124

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-057 | Inorganics - Nutrients (Water) | Batch BGB2321

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2321-DUP1# Samp QC RPD %	PGB0878-02 Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	0.00768 0.00748 [NA]	0.0417 0.0412 1.32	102	100
Nitrate as N	mg/L	0.0050	<0.0050	0.00746 0.00574 [NA]	0.153 0.145 5.15	109	116
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0636 0.0648 1.88	106	106
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	0.00764 0.00648 [NA]	0.216 0.210 3.03	109	116
Phosphate as P	mg/L	0.0050	<0.0050	0.0152 0.0141 [NA]	0.0295 0.0285 3.30	104	97.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGB2907

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2907-DUP1# Samp QC RPD %	PGB0878-01 Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	4.14 4.26 3.05	0.647 0.616 4.93	102	96.6

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGB0878

INORG-021 | Inorganics - Common Wastewater Parameters (Water) | Batch BGB2136

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2136-DUP1# Samp QC RPD %	BGB2136-DUP2# Samp QC RPD %		BGB2136-MS1#
MBAS	mg/L	0.10	<0.10	0.440 0.420 [NA]	0.650 0.570 13.1	92.0	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGC0301

Analyte	Units	PQL	Blank	LCS %
BOD	mg/L	5.0	<5.0	91.6

MICRO-001B | Microbiological Suite (Water) | Batch BGB2350

Analyte	Units	PQL	Blank	LCS %
Thermotolerant Coliforms	cfu/100mL	1	<1	[NA]
E.coli	cfu/100mL	1	<1	[NA]

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Surrogate recovery is outside routine acceptance criteria (60-140%) as a result of the high concentration of analyte(s) in the sample.
[4]	PQL has been raised due to matrix requiring dilution
[5]	Note: There was insufficient sample to perform all QC according to our internal guidelines.
[6]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.



Certificate of Analysis PGE0472

Client Details

Client Process Minerals International Pty Ltd (PMI)
Contact [REDACTED]
Address 20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference Mount Marion MTM Groundwater - Quarterly
Number of Samples 5 Water
Date Samples Received 07/05/2025
Date Instructions Received 07/05/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

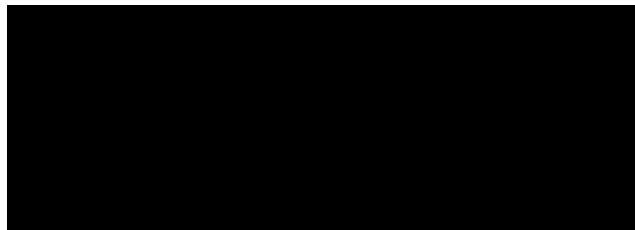
Date Final Results Expected 13/06/2025
Date of Reissue 13/06/2025 - This report supercedes previous report, see amendment history for details

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Authorisation Details

Results Approved By



Laboratory Manager

Certificate of Analysis PGE0472

Report Amendment History

Revision	Reason for Amendment
R-01	Radiation subcon results added.

Certificate of Analysis PGE0472

Samples in this Report

Envirolab ID	Sample ID	Description	Matrix	Date Sampled	Date Received
PGE0472-01	MTM-MB21MMN02B	MB21 MM N02B	Water	06/05/2025	07/05/2025
PGE0472-02	MTM-MB21WRD02B	MB21 WRD 02B	Water	06/05/2025	07/05/2025
PGE0472-03	MTM-MB21WRD03B	MB21 WRD 03B	Water	06/05/2025	07/05/2025
PGE0472-04	MTM-PRW-TN001	TN01	Water	06/05/2025	07/05/2025
PGE0472-05	MTM-PW-AMGWashbay	AMG Washbay	Water	06/05/2025	07/05/2025

Certificate of Analysis PGE0472

Volatile TRH and BTEX (Water)

Envirolab ID Your Reference	Units	PQL	PGE0472-05 MTM-PW-AMGW ashbay AMG Washbay 06/05/2025
Date Sampled			
TRH C6-C9	µg/L	10	<100 [3]
TRH C6-C10	µg/L	10	<100 [3]
TRH C6-C10 less BTEX (F1)	µg/L	10	<100
Methyl tert butyl ether (MTBE)	µg/L	1.0	<10 [3]
Benzene	µg/L	1.0	<10 [3]
Toluene	µg/L	1.0	<10 [3]
Ethylbenzene	µg/L	1.0	<10 [3]
meta+para Xylene	µg/L	2.0	<20 [3]
ortho-Xylene	µg/L	1.0	<10 [3]
Total +ve Xylenes	µg/L	1.0	<10
Naphthalene (value used in F2 calc)	µg/L	1.0	<10 [3]
Total +ve BTEX	µg/L	1.0	<10
<i>Surrogate Dibromofluoromethane</i>	%		<i>95.8</i>
<i>Surrogate Toluene-D8</i>	%		<i>90.7</i>
<i>Surrogate 4-Bromofluorobenzene</i>	%		<i>99.4</i>

Certificate of Analysis PGE0472

Semi-volatile TRH (Water)

Envirolab ID Your Reference	Units	PQL	PGE0472-05 MTM-PW-AMGW ashbay AMG Washbay 06/05/2025
Date Sampled			
TRH C10-C14	µg/L	50	670
TRH C15-C28	µg/L	100	840
TRH C29-C36	µg/L	100	190
Total +ve TRH C10-C36	µg/L	50	1700
TRH >C10-C16	µg/L	50	310
TRH >C10-C16 less Naphthalene F2	µg/L	50	310
TRH >C16-C34 (F3)	µg/L	100	830
TRH >C34-C40 (F4)	µg/L	100	130
Total +ve TRH >C10-C40	µg/L	50	1300
<i>Surrogate o-Terphenyl</i>	%		<i>94.2</i>

Certificate of Analysis PGE0472

Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGE0472-01	PGE0472-02	PGE0472-03
Your Reference			MTM-MB21MMN 02B MB21 MM N02B	MTM-MB21WRD 02B MB21 WRD 02B	MTM-MB21WRD 03B MB21 WRD 03B
Date Sampled			06/05/2025	06/05/2025	06/05/2025
Phosphorus	mg/L	0.050	0.72	<0.25 [4]	<0.25 [4]

Certificate of Analysis PGE0472

Dissolved Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGE0472-01 MTM-MB21MMN 02B MB21 MM N02B	PGE0472-02 MTM-MB21WRD 02B MB21 WRD 02B	PGE0472-03 MTM-MB21WRD 03B MB21 WRD 03B
Date Sampled			06/05/2025	06/05/2025	06/05/2025
Silicon	mg/L	0.10	42	15	6.3
Silica*	mg/L	0.20	89	33	13

Certificate of Analysis PGE0472

Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGE0472-01 MTM-MB21MMN 02B MB21 MM N02B	PGE0472-02 MTM-MB21WRD 02B MB21 WRD 02B	PGE0472-03 MTM-MB21WRD 03B MB21 WRD 03B	PGE0472-04 MTM-PRW-TN00 1 TN01
Date Sampled			06/05/2025	06/05/2025	06/05/2025	06/05/2025
Aluminium	mg/L	0.010	0.38	<0.020 [4]	<0.020 [4]	[NA]
Arsenic	mg/L	0.0010	<0.0010	<0.0020 [4]	<0.0020 [4]	[NA]
Boron	mg/L	0.020	3.6	11 [4]	10 [4]	[NA]
Barium	mg/L	0.0010	0.018	0.073 [4]	0.061 [4]	[NA]
Beryllium	mg/L	0.00050	0.0056	<0.0010 [4]	<0.0010 [4]	[NA]
Cadmium	mg/L	0.00010	0.00049	<0.00020 [4]	<0.00020 [4]	[NA]
Cobalt	mg/L	0.0010	0.046	0.0080 [4]	0.012 [4]	[NA]
Chromium	mg/L	0.0010	<0.0010	<0.0020 [4]	<0.0020 [4]	[NA]
Copper	mg/L	0.0010	0.0020	0.0089 [4]	0.0087 [4]	[NA]
Iron	mg/L	0.010	690	54 [4]	0.48 [4]	[NA]
Mercury	mg/L	0.000050	<0.000050	<0.000050	<0.000050	[NA]
Lithium	mg/L	0.0010	2.1	1.2 [4]	1.6 [4]	[NA]
Manganese	mg/L	0.0010	7.0	10 [4]	2.9 [4]	[NA]
Molybdenum	mg/L	0.0010	<0.0010	<0.0020 [4]	0.0034 [4]	[NA]
Nickel	mg/L	0.0010	0.13	0.0045 [4]	0.029 [4]	[NA]
Lead	mg/L	0.0010	<0.0010	<0.0020 [4]	<0.0020 [4]	[NA]
Rubidium*	mg/L	0.0010	[NA]	[NA]	[NA]	0.35
Selenium	mg/L	0.0010	<0.0010	<0.0020 [4]	<0.0020 [4]	[NA]
Strontium	mg/L	0.0010	0.24	5.8 [4]	2.2 [4]	[NA]
Thorium	mg/L	0.00050	[NA]	[NA]	[NA]	<0.00050
Titanium	mg/L	0.0010	<0.0010	<0.0020 [4]	<0.0020 [4]	[NA]
Uranium	mg/L	0.0010	[NA]	[NA]	[NA]	0.016
Vanadium	mg/L	0.0010	<0.0010	<0.0020 [4]	<0.0020 [4]	[NA]
Zinc	mg/L	0.0010	68	0.023 [4]	0.011 [4]	[NA]

Certificate of Analysis PGE0472

Inorganics - Physical Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGE0472-01 MTM-MB21MMN 02B MB21 MM N02B	PGE0472-02 MTM-MB21WRD 02B MB21 WRD 02B	PGE0472-03 MTM-MB21WRD 03B MB21 WRD 03B	PGE0472-05 MTM-PW-AMGW ashbay AMG Washbay
Date Sampled			06/05/2025	06/05/2025	06/05/2025	06/05/2025
pH	pH units		5.4	6.6	7.3	7.8
pH (True Colour)	pH units		5.5	6.7	7.4	[NA]
Electrical Conductivity	µS/cm	2.0	18000	54000	50000	19000
Total Dissolved Solids	mg/L	5.0	13000	33000	31000	[NA]
Total Suspended Solids	mg/L	5.0	4500	80	49	[NA]
Turbidity	NTU	0.10	3000 [7]	320 [8]	120	[NA]
Turbidity (filtered)*	NTU	0.10	0.30	0.35	0.60	[NA]
Colour (True)	PCU	5.0	55	73	<5.0	[NA]

Certificate of Analysis PGE0472

Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference	Units	PQL	PGE0472-01 MTM-MB21MMN 02B MB21 MM N02B	PGE0472-02 MTM-MB21WRD 02B MB21 WRD 02B	PGE0472-03 MTM-MB21WRD 03B MB21 WRD 03B
Date Sampled			06/05/2025	06/05/2025	06/05/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	47	310	140
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	47	310	140
Chloride	mg/L	1.0	5200	21000	18000
Sulfate	mg/L	1.0	3800	3100	4600
Calcium	mg/L	0.50	180	250	120
Magnesium	mg/L	0.50	560	1500	1800
Potassium	mg/L	0.50	38	220	110
Sodium	mg/L	0.50	3000	11000	9500
Hardness (calc) equivalent CaCO3	mg/L	3.0	2800	6800	7600
Ionic Balance	%		-9.2	-1.8	-2.8

Certificate of Analysis PGE0472

Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGE0472-01	PGE0472-02	PGE0472-03
Your Reference			MTM-MB21MMN 02B MB21 MM N02B	MTM-MB21WRD 02B MB21 WRD 02B	MTM-MB21WRD 03B MB21 WRD 03B
Date Sampled			06/05/2025	06/05/2025	06/05/2025
Fluoride	mg/L	0.10	1.2	0.61	<0.10

Certificate of Analysis PGE0472

Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGE0472-01	PGE0472-02	PGE0472-03
Your Reference			MTM-MB21MMN 02B MB21 MM N02B	MTM-MB21WRD 02B MB21 WRD 02B	MTM-MB21WRD 03B MB21 WRD 03B
Date Sampled			06/05/2025	06/05/2025	06/05/2025
Ferrous Iron	mg/L	0.050	610	42	0.15

Certificate of Analysis PGE0472

Inorganics - Nutrients (Water)

Envirolab ID Your Reference	Units	PQL	PGE0472-01 MTM-MB21MMN 02B MB21 MM N02B	PGE0472-02 MTM-MB21WRD 02B MB21 WRD 02B	PGE0472-03 MTM-MB21WRD 03B MB21 WRD 03B
Date Sampled			06/05/2025	06/05/2025	06/05/2025
Ammonia as N	mg/L	0.0050	0.057	0.20	0.041
Nitrate as N	mg/L	0.0050	<0.10 [5]	<0.10 [5]	<0.0050
Nitrate as NO3 by calculation	mg/L	0.020	<0.40 [5]	<0.40 [5]	<0.020
Nitrite as N	mg/L	0.0050	<0.10 [5]	<0.10 [5]	<0.0050
Nitrite as NO2 by calculation	mg/L	0.020	<0.40 [5]	<0.40 [5]	<0.020
NOx as N	mg/L	0.0050	<0.10 [5]	<0.10 [5]	<0.0050
TKN as N by calculation	mg/L	0.10	0.66	0.62	0.20
Total Nitrogen	mg/L	0.10	0.66	0.62	0.20
Phosphate as P	mg/L	0.0050	<0.050 [5]	<0.050 [5]	0.025

Certificate of Analysis PGE0472

Inorganics - Common Wastewater Parameters (Water)

Envirolab ID	Units	PQL	PGE0472-05
Your Reference			MTM-PW-AMGW ashbay AMG Washbay
Date Sampled			06/05/2025
MBAS	mg/L	0.10	0.59

Certificate of Analysis PGE0472

Subcontracted Radiological - Certificate: ME372347 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGE0472-04
Your Reference			MTM-PRW-TN00 1
Date Sampled			06/05/2025
Gross alpha	Bq/L		0.493
Gross beta	Bq/L		0.2
Lead-210	Bq/L		<0.3
Radium 226	Bq/L		0.131
Radium 228	Bq/L		0.11

Certificate of Analysis PGE0472

Subcontracted Radiological - Potassium 40 - Certificate: ME372347 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGE0472-04
Your Reference			MTM-PRW-TN00 1
Date Sampled			06/05/2025
Potassium-40	Bq/L		1.7

Certificate of Analysis PGE0472

Result Comments

Identifier	Description
[3]	PQL(s) has/have been raised as the sample(s) was/were foamy and therefore required dilution.
[4]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[5]	PQL(s) has/have been raised due to matrix interference.
[7]	extra cloudy and precipitate
[8]	orange sample, precipitate

Certificate of Analysis PGE0472

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-021	Methylene Blue Active Substances - determined colorimetrically, based on APHA latest edition, Method 5540-C. Solid samples extracted with water.
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG-026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
SUB-027	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGE0472

Method Summary

Method ID	Methodology Summary
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGE0472

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGE0472

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGE0472

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	Mount Marion MTM Groundwater - Quarterly
Date Issued	13/06/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGE0472

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Water	5	06/05/2025	08/05/2025	08/05/2025	Yes
sTRH Water	5	06/05/2025	09/05/2025	13/05/2025	Yes
Total Phosphorus Water	1	06/05/2025	09/05/2025	13/05/2025	Yes
	2-3	06/05/2025	09/05/2025	14/05/2025	Yes
Dissolved Metals Water	1	06/05/2025	09/05/2025	12/05/2025	Yes
	2-3	06/05/2025	09/05/2025	13/05/2025	Yes
Dissolved Metals (LL) Water	1-3	06/05/2025	09/05/2025	13/05/2025	Yes
	4	06/05/2025	12/05/2025	12/05/2025	Yes
Dissolved Metals (LL)-Hg Water	1-3	06/05/2025	09/05/2025	12/05/2025	Yes
Colour-True Water	1-3	06/05/2025	09/05/2025	09/05/2025	Yes
EC Water	1-3, 5	06/05/2025	09/05/2025	09/05/2025	Yes
pH Water	1-3, 5	06/05/2025	09/05/2025	09/05/2025	No
pH (True Colour) Water	1-3	06/05/2025	09/05/2025	09/05/2025	No
TDS Water	1-3	06/05/2025	09/05/2025	12/05/2025	Yes
TSS Water	1-3	06/05/2025	09/05/2025	09/05/2025	Yes
Turbidity Water	1-3	06/05/2025	12/05/2025	12/05/2025	No
Turbidity (filtered) Water	1-3	06/05/2025	13/05/2025	13/05/2025	No
Alkalinity Suite Water	1-3	06/05/2025	09/05/2025	09/05/2025	Yes
Chloride Water	1, 3	06/05/2025	08/05/2025	08/05/2025	Yes
	2	06/05/2025	08/05/2025	09/05/2025	Yes
Dissolved Cations Water	1	06/05/2025	09/05/2025	12/05/2025	Yes
	2-3	06/05/2025	09/05/2025	13/05/2025	Yes
Ion Balance Water	1-3	06/05/2025	08/05/2025	14/05/2025	Yes
Sulfate Water	1, 3	06/05/2025	08/05/2025	08/05/2025	Yes
	2	06/05/2025	08/05/2025	09/05/2025	Yes
Fluoride Water	1-3	06/05/2025	12/05/2025	12/05/2025	Yes
Ferrous Iron Water	1-3	06/05/2025	09/05/2025	09/05/2025	Yes
Nitrogen - Ammonia Water	1-3	06/05/2025	09/05/2025	09/05/2025	Yes
Nitrogen - Nitrate Water	3	06/05/2025	09/05/2025	09/05/2025	Yes
	1-2	06/05/2025	09/05/2025	12/05/2025	Yes
Nitrogen - Nitrite Water	3	06/05/2025	09/05/2025	09/05/2025	No
	1-2	06/05/2025	09/05/2025	12/05/2025	No
Nitrogen - NOx Water	3	06/05/2025	09/05/2025	09/05/2025	Yes
	1-2	06/05/2025	09/05/2025	12/05/2025	Yes
Nitrogen - Total N Water	1-2	06/05/2025	12/05/2025	05/12/2025	Yes
	3	06/05/2025	12/05/2025	13/05/2025	Yes
Phosphate as P Water	1-3	06/05/2025	09/05/2025	09/05/2025	No
TKN as N calc Water	1-3	06/05/2025	08/05/2025	14/05/2025	Yes
MBAS Water	5	06/05/2025	09/05/2025	13/05/2025	No

Data Quality Assessment Summary PGE0472

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Gross alpha & beta Water	4	06/05/2025	14/05/2025	13/06/2025	Yes
Lead 210 Water	4	06/05/2025	30/05/2025	13/06/2025	Yes
Radium 226 & 228 Water	4	06/05/2025	30/05/2025	13/06/2025	Yes
GROSS_ALPHA_BETA_SGS Water	4	06/05/2025	28/05/2025	13/06/2025	Yes

Outliers: Matrix Spike

INORG-055 | Inorganics - Nutrients (Water) | Batch BGE1524

Sample ID	Analyte	% Limits	% Recovery
BGE1524-MS1#	Nitrate as N	70 - 130	##[1]
BGE1524-MS2#	Nitrite as N	70 - 130	##[1]
BGE1524-MS1#	NOx as N	70 - 130	##[1]

INORG-057 | Inorganics - Nutrients (Water) | Batch BGE1524

Sample ID	Analyte	% Limits	% Recovery
BGE1524-MS1#	Ammonia as N	70 - 130	##[1]

INORG-060 | Inorganics - Nutrients (Water) | Batch BGE1524

Sample ID	Analyte	% Limits	% Recovery
BGE1524-MS1#	Phosphate as P	70 - 130	##[1]

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGE1507

Sample ID	Analyte	% Limits	% Recovery
PGE0472-03	Ferrous Iron	70 - 130	##[2]

METALS-020 | Dissolved Metals (Water) | Batch BGE1708

Sample ID	Analyte	% Limits	% Recovery
BGE1708-MS1#	Silicon	70 - 130	##[2]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE1712

Sample ID	Analyte	% Limits	% Recovery
BGE1712-MS1#	Barium	70 - 130	##[1]
BGE1712-MS1#	Iron	70 - 130	##[1]
BGE1712-MS1#	Manganese	70 - 130	##[1]

Data Quality Assessment Summary PGE0472

Outliers: QC Frequency

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGE1437

Analysis	QC Type	Expected	Reported
VTRH&MBTEXN	Duplicate	2	0
	Matrix Spike	1	0

Quality Control PGE0472

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGE1437

Analyte	Units	PQL	Blank	LCS %
TRH C6-C9	µg/L	10	<10	90.8
TRH C6 C10	µg/L	10	10	93.5
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	[NA]
Benzene	µg/L	1.0	<1.0	97.9
Toluene	µg/L	1.0	<1.0	106
Ethylbenzene	µg/L	1.0	<1.0	104
meta+para Xylene	µg/L	2.0	<2.0	106
ortho-Xylene	µg/L	1.0	<1.0	104
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	[NA]
<i>Surrogate Dibromofluoromethane</i>	%		93.8	103
<i>Surrogate Toluene-D8</i>	%		91.8	100
<i>Surrogate 4 Bromofluorobenzene</i>	%		98.3	94.4

ORG-020 | Semi-volatile TRH (Water) | Batch BGE1649

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1649-DUP1# Samp QC RPD %	BGE1649-DUP2# Samp QC RPD %		
TRH C10-C14	µg/L	50	<50	1080 1110 2.78	<50 <50 [NA]	111	107
TRH C15-C28	µg/L	100	<100	3530 3580 1.39	<100 <100 [NA]	118	112
TRH C29-C36	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	133	110
TRH >C10-C16	µg/L	50	<50	2940 2980 1.27	<50 <50 [NA]	118	112
TRH >C16-C34 (F3)	µg/L	100	<100	1670 1730 3.62	<100 <100 [NA]	120	112
TRH >C34-C40 (F4)	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	113	106
<i>Surrogate o-Terphenyl</i>	%		112	109 / 94.6	107 / 102	87.4	87.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Water) | Batch BGE1727

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1727-DUP1# Samp QC RPD %	BGE1727-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	0.963 0.972 0.994	9.27 9.32 0.490	105	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGE1708

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1708-DUP1# Samp QC RPD %	BGE1708-DUP2# Samp QC RPD %		
Silicon	mg/L	0.10	<0.10	6.72 6.60 1.67	9.06 9.14 0.862	105	##[2]
Silica	mg/L	0.20	0.20	14.4 14.1 1.67	19.4 19.6 0.862	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0472

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE1712

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1712-DUP1# Samp QC RPD %	BGE1712-DUP2# Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	92.8	90.7
Arsenic	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	101	100
Barium	mg/L	0.0010	<0.0010	0.0197 0.0198 0.769	0.556 0.544 2.18	107	##[1]
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	104	115
Boron	mg/L	0.020	<0.020	<0.020 <0.020 [NA]	1.25 1.25 0.423	92.0	119
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.00010 <0.00010 [NA]	103	103
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	101	101
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	102	99.4
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	100	99.2
Iron	mg/L	0.010	<0.010	0.0146 0.0148 [NA]	0.0550 0.0481 13.4	101	##[1]
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	105	106
Lithium	µg/L	1		<0.0010 0.00106 [NA] [6]	0.0169 0.0169 0.0118	[NA]	113
Manganese	mg/L	0.0010	<0.0010	0.0101 0.0100 0.527	0.0511 0.0503 1.58	98.5	##[1]
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00416 0.00431 [NA]	102	106
Nickel	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	100	96.3
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	107	102
Strontium	µg/L	1		0.0302 0.0300 0.704	3.50 3.44 1.70	[NA]	81.2
Titanium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	96.8	96.2
Vanadium	mg/L	0.0010	<0.0010	0.00750 0.00759 1.09	<0.0010 <0.0010 [NA]	103	104
Zinc	mg/L	0.0010	<0.0010	0.00394 0.00388 [NA]	0.00507 0.00495 2.48	101	99.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGE1718

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1718-DUP1# Samp QC RPD %	BGE1718-DUP2# Samp QC RPD %		
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	97.2	80.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE1798

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1798-DUP1# Samp QC RPD %	BGE1798-DUP2# Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.00935 0.00982 4.88	0.0100 0.00979 2.21	104	106
Thorium	mg/L	0.00050	<0.00050	0.000568 0.000535 [NA]	<0.00050 <0.00050 [NA]	93.4	91.8
Uranium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	96.6	96.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGE1496

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE1496-DUP1# Samp QC RPD %	BGE1496-DUP2# Samp QC RPD %	
pH	pH units		5.9	7.3 7.2 1.10	6.4 6.4 0.156	103
Electrical Conductivity	µS/cm	2.0	<2.0	554 544 1.93	966 961 0.436	96.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGE1503

Analyte	Units	PQL	Blank	DUP1	LCS %
				BGE1503-DUP1# Samp QC RPD %	
pH (True Colour)	pH units		5.9	8.2 8.2 0.00	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0472

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGE1524

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE1524-DUP1# Samp QC RPD %	BGE1524-DUP2# Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	64.9 65.5 0.946	54.2 50.6 6.95	97.8

Analyte	Units	PQL	Blank	LCS %		
Colour (True)	PCU	5.0	<5.0			[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGE1636

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0472-01 Samp QC RPD %	PGE0472-02 Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	13400 13500 1.19	32800 32600 0.612	100

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGE1637

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0472-01 Samp QC RPD %	PGE0472-02 Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	4460 3790 16.3	79.5 75.5 5.16	96.0

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGE1854

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE1854-DUP1# Samp QC RPD %	BGE1854-DUP2# Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	0.400 0.360 [NA]	1.60 1.50 6.45	100

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGE2083

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE2083-DUP1# Samp QC RPD %	BGE2083-DUP2# Samp QC RPD %	
Turbidity (filtered)	NTU	0.10	<0.10	0.200 0.200 [NA]	0.350 0.350 [NA]	90.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1401

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike % BGE1401-MS1#
				BGE1401-DUP1# Samp QC RPD %	BGE1401-DUP2# Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	179 178 0.620	111 109 1.76	89.9	106
Sulfate	mg/L	1.0	<1.0	20.0 20.0 0.178	21.5 21.4 0.882	88.5	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1496

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE1496-DUP1# Samp QC RPD %	BGE1496-DUP2# Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	7.43 6.88 [NA]	21.4 20.6 [NA]	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	7.43 6.88 [NA]	21.4 20.6 [NA]	95.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0472

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1708

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1708-DUP1# Samp QC RPD %	BGE1708-DUP2# Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	6.55 6.37 2.82	32.8 32.6 0.609	98.2	97.5
Magnesium	mg/L	0.50	0.50	6.41 6.29 1.96	54.6 51.9 4.98	98.4	93.6
Potassium	mg/L	0.50	<0.50	1.58 1.55 [NA]	60.9 61.4 0.932	97.2	95.3
Sodium	mg/L	0.50	<0.50	46.7 45.8 1.91	446 450 0.986	89.8	95.1
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	42.8 41.8 2.29	307 295 3.80	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGE1790

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1790-DUP1# Samp QC RPD %	BGE1790-DUP2# Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	<0.10 <0.10 [NA]	0.535 0.446 [NA]	105	120

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGE1506

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1506-DUP1# Samp QC RPD %	BGE1506-DUP2# Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	<0.050 <0.050 [NA]	<1.0 <1.0 [NA]	108	124

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGE1507

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				PGE0472-02 Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	42.0 42.9 2.11	108	##[2]

INORG-057 | Inorganics - Nutrients (Water) | Batch BGE1524

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1524 DUP1# Samp QC RPD %	BGE1524 DUP2# Samp QC RPD %		
Ammonia as N	mg/L	0.0050	0.0050	26.3 26.3 0.0127	13.8 13.7 1.02	95.3	##[1]
Nitrate as N	mg/L	0.0050	<0.0050	23.0 23.9 3.48	<0.0050 <0.0050 [NA]	111	##[1]
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	2.71 2.65 2.40	<0.0050 <0.0050 [NA]	108	##[1]
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	25.8 26.5 2.88	<0.0050 <0.0050 [NA]	111	##[1]
Phosphate as P	mg/L	0.0050	<0.0050	8.84 8.97 1.52	<0.0050 <0.0050 [NA]	116	##[1]

Analyte	Units	PQL	Blank	LCS %	Spike %
Nitrate as N	mg/L	0.005		[NA]	##[1]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGE1848

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGE0472-01 Samp QC RPD %	BGE1848-DUP2# Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	0.657 0.602 [NA]	3.20 3.60 [NA]	93.3	95.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0472

INORG-021 | Inorganics - Common Wastewater Parameters (Water) | Batch BGE1586

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1586-DUP1# Samp QC RPD %	BGE1586-DUP2# Samp QC RPD %		BGE1586-MS1#
MBAS	mg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	95.0	93.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[6]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.



Certificate of Analysis PGE0566

Client Details

Client Process Minerals International Pty Ltd (PMI)
Contact [REDACTED]
Address 20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference Mount Marion MTM Groundwater - Quarterly
Number of Samples 10 Water
Date Samples Received 08/05/2025
Date Instructions Received 08/05/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

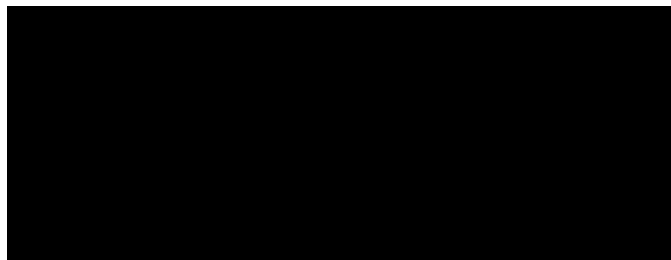
Date Final Results Expected 09/06/2025
Date of Reissue 18/06/2025 - This report supercedes previous report, see amendment history for details

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Authorisation Details

Results Approved By



Laboratory Manager

Certificate of Analysis PGE0566

Report Amendment History

Revision	Reason for Amendment
R-01	Radiological results added.

Certificate of Analysis PGE0566

Samples in this Report

EnviroLab ID	Sample ID	Matrix	Date Sampled	Date Received
PGE0566-01	MTM-MB21WRD01B	Water	07/05/2025	08/05/2025
PGE0566-02	MTM-MB19MMC02A	Water	07/05/2025	08/05/2025
PGE0566-03	MTM-MB19MMC03	Water	07/05/2025	08/05/2025
PGE0566-04	MTM-MB21WRD04B	Water	07/05/2025	08/05/2025
PGE0566-05	MTM-PB06	Water	07/05/2025	08/05/2025
PGE0566-06	MTM-PB10	Water	07/05/2025	08/05/2025
PGE0566-07	MTM-PB12	Water	07/05/2025	08/05/2025
PGE0566-08	MTM-WWTP-Stage2	Water	07/05/2025	08/05/2025
PGE0566-09	MTM-WWTP-Stage3	Water	07/05/2025	08/05/2025
PGE0566-10	Duplicate	Water	07/05/2025	08/05/2025

Sample Comments

MTM-MB21WRD04B Sample ID confirmed by email communication.

Certificate of Analysis PGE0566

Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGE0566-01	PGE0566-02	PGE0566-03	PGE0566-04	PGE0566-08
Your Reference			MTM-MB21WRD 01B	MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 04B	MTM-WWTP-Station ge2
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Phosphorus	mg/L	0.050	0.11	0.26	0.061	<0.25 [3]	6.5

Envirolab ID	Units	PQL	PGE0566-09	PGE0566-10
Your Reference			MTM-WWTP-Station ge3	Duplicate
Date Sampled			07/05/2025	07/05/2025
Phosphorus	mg/L	0.050	4.3	0.26

Certificate of Analysis PGE0566

Dissolved Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGE0566-01 MTM-MB21WRD 01B	PGE0566-02 MTM-MB19MMC 02A	PGE0566-03 MTM-MB19MMC 03	PGE0566-04 MTM-MB21WRD 04B	PGE0566-10 Duplicate
			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Silicon	mg/L	0.10	21	24	26	18	24
Silica*	mg/L	0.20	45	51	56	39	50

Certificate of Analysis PGE0566

Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGE0566-01 MTM-MB21WRD 01B 07/05/2025	PGE0566-02 MTM-MB19MMC 02A 07/05/2025	PGE0566-03 MTM-MB19MMC 03 07/05/2025	PGE0566-04 MTM-MB21WRD 04B 07/05/2025	PGE0566-05 MTM-PB06 07/05/2025
Aluminium	mg/L	0.010	0.018	<0.010	<0.010	<0.050 [4]	[NA]
Arsenic	mg/L	0.0010	0.015	0.11	0.040	<0.0050 [4]	[NA]
Boron	mg/L	0.020	1.9	6.4	4.2	11	[NA]
Barium	mg/L	0.0010	0.31	0.54	1.6	0.074	[NA]
Beryllium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.0025 [4]	[NA]
Cadmium	mg/L	0.00010	0.00018	<0.00010	0.00020	<0.00050 [4]	[NA]
Cobalt	mg/L	0.0010	0.0085	0.026	0.18	0.027	[NA]
Chromium	mg/L	0.0010	<0.0010	0.0012	0.0093	<0.0050 [4]	[NA]
Copper	mg/L	0.0010	0.017	<0.0010	0.012	<0.0050 [4]	[NA]
Iron	mg/L	0.010	<0.010	18	0.25	0.051	[NA]
Mercury	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	[NA]
Lithium	mg/L	0.0010	2.1	2.8	0.94	1.3	[NA]
Manganese	mg/L	0.0010	0.42	13	19	3.8	[NA]
Molybdenum	mg/L	0.0010	0.028	0.049	0.014	0.0067	[NA]
Nickel	mg/L	0.0010	0.039	0.11	0.35	0.12	[NA]
Lead	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0050 [4]	[NA]
Rubidium*	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	0.15
Selenium	mg/L	0.0010	0.027	0.0059	0.0094	<0.0050 [4]	[NA]
Strontium	mg/L	0.0010	3.4	9.3	19	0.69	[NA]
Thorium	mg/L	0.00050	[NA]	[NA]	[NA]	[NA]	0.00057
Titanium	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0050 [4]	[NA]
Uranium	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	0.11
Vanadium	mg/L	0.0010	0.047	0.0028	0.033	<0.0050 [4]	[NA]
Zinc	mg/L	0.0010	0.15	0.060	0.10	0.0086	[NA]

Envirolab ID Your Reference Date Sampled	Units	PQL	PGE0566-06 MTM-PB10 07/05/2025	PGE0566-07 MTM-PB12 07/05/2025	PGE0566-10 Duplicate 07/05/2025
Aluminium	mg/L	0.010	[NA]	[NA]	<0.020 [4]
Arsenic	mg/L	0.0010	[NA]	[NA]	0.012
Boron	mg/L	0.020	[NA]	[NA]	8.1
Barium	mg/L	0.0010	[NA]	[NA]	0.049
Beryllium	mg/L	0.00050	[NA]	[NA]	<0.0010 [4]
Cadmium	mg/L	0.00010	[NA]	[NA]	<0.00020 [4]
Cobalt	mg/L	0.0010	[NA]	[NA]	0.0033
Chromium	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Copper	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Iron	mg/L	0.010	[NA]	[NA]	1.2
Mercury	mg/L	0.000050	[NA]	[NA]	<0.000050
Lithium	mg/L	0.0010	[NA]	[NA]	2.9
Manganese	mg/L	0.0010	[NA]	[NA]	1.4
Molybdenum	mg/L	0.0010	[NA]	[NA]	0.0047
Nickel	mg/L	0.0010	[NA]	[NA]	0.014
Lead	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Rubidium*	mg/L	0.0010	1.4	0.091	[NA]
Selenium	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]

Certificate of Analysis PGE0566

Dissolved Low Level Metals (Water)

Envirolab ID	Units	PQL	PGE0566-06	PGE0566-07	PGE0566-10
Your Reference			MTM-PB10	MTM-PB12	Duplicate
Date Sampled			07/05/2025	07/05/2025	07/05/2025
Strontium	mg/L	0.0010	[NA]	[NA]	1.1
Thorium	mg/L	0.00050	0.0012	<0.00050	[NA]
Titanium	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Uranium	mg/L	0.0010	0.060	0.0055	[NA]
Vanadium	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Zinc	mg/L	0.0010	[NA]	[NA]	0.010

Certificate of Analysis PGE0566

Inorganics - Physical Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGE0566-01 MTM-MB21WRD 01B	PGE0566-02 MTM-MB19MMC 02A	PGE0566-03 MTM-MB19MMC 03	PGE0566-04 MTM-MB21WRD 04B	PGE0566-08 MTM-WWTP-Station ge2
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
pH	pH units		7.8	7.5	7.4	7.6	7.9
pH (True Colour)	pH units		7.6	7.1	7.2	7.3	[NA]
Electrical Conductivity	µS/cm	2.0	4600	34000	22000	33000	[NA]
Total Dissolved Solids	mg/L	5.0	2800	24000	14000	24000	[NA]
Total Suspended Solids	mg/L	5.0	99	310	20	<5.0	<5.0
Turbidity	NTU	0.10	100 [7]	2.5	39	1.2	[NA]
Turbidity (filtered)*	NTU	0.10	0.35	0.25	0.35	0.20	[NA]
Colour (True)	PCU	5.0	<5.0	36	13	<5.0	[NA]

Envirolab ID Your Reference	Units	PQL	PGE0566-09 MTM-WWTP-Station ge3	PGE0566-10 Duplicate
Date Sampled			07/05/2025	07/05/2025
pH	pH units		8.0	7.5
pH (True Colour)	pH units		[NA]	7.2
Electrical Conductivity	µS/cm	2.0	[NA]	33000
Total Dissolved Solids	mg/L	5.0	[NA]	24000
Total Suspended Solids	mg/L	5.0	18	340
Turbidity	NTU	0.10	[NA]	200 [7]
Turbidity (filtered)*	NTU	0.10	[NA]	0.20
Colour (True)	PCU	5.0	[NA]	20

Certificate of Analysis PGE0566

Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference	Units	PQL	PGE0566-01 MTM-MB21WRD 01B	PGE0566-02 MTM-MB19MMC 02A	PGE0566-03 MTM-MB19MMC 03	PGE0566-04 MTM-MB21WRD 04B	PGE0566-10 Duplicate
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	520	910	940	920	910
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	520	910	940	920	910
Chloride	mg/L	1.0	930	11000	6900	11000	11000
Sulfate	mg/L	1.0	380	3500	2000	3100	3700
Calcium	mg/L	0.50	77	75	240	79	74
Magnesium	mg/L	0.50	160	1100	920	1100	1100
Potassium	mg/L	0.50	15	120	48	140	120
Sodium	mg/L	0.50	620	6800	3600	6800	6800
Hardness (calc) equivalent CaCO3	mg/L	3.0	860	4900	4400	4600	4800
Ionic Balance	%		-0.70	-0.90	-2.0	-0.14	-1.4

Certificate of Analysis PGE0566

Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGE0566-01	PGE0566-02	PGE0566-03	PGE0566-04	PGE0566-10
Your Reference			MTM-MB21WRD 01B	MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 04B	Duplicate
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Fluoride	mg/L	0.10	0.62	0.14	0.87	0.13	0.12

Certificate of Analysis PGE0566

Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGE0566-01	PGE0566-02	PGE0566-03	PGE0566-04	PGE0566-10
Your Reference			MTM-MB21WRD 01B	MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 04B	Duplicate
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Ferrous Iron	mg/L	0.050	<0.050	1.8	<0.050	<0.050	11

Certificate of Analysis PGE0566

Inorganics - Nutrients (Water)

Envirolab ID Your Reference	Units	PQL	PGE0566-01 MTM-MB21WRD 01B	PGE0566-02 MTM-MB19MMC 02A	PGE0566-03 MTM-MB19MMC 03	PGE0566-04 MTM-MB21WRD 04B	PGE0566-08 MTM-WWTP-Station ge2
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Ammonia as N	mg/L	0.0050	<0.0050	0.16	0.0056	0.079	[NA]
Nitrate as N	mg/L	0.0050	9.7	<0.0050	0.028	<0.0050	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	43	<0.020	0.13	<0.020	[NA]
Nitrite as N	mg/L	0.0050	0.15	<0.0050	0.033	<0.0050	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	0.50	<0.020	0.11	<0.020	[NA]
NOx as N	mg/L	0.0050	9.9	<0.0050	0.061	<0.0050	[NA]
TKN as N by calculation	mg/L	0.10	3.3	0.66	0.26	0.33	[NA]
Total Nitrogen	mg/L	0.10	13	0.66	0.32	0.33	17
Phosphate as P	mg/L	0.0050	0.037	0.0088	0.018	0.052	[NA]

Envirolab ID Your Reference	Units	PQL	PGE0566-09 MTM-WWTP-Station ge3	PGE0566-10 Duplicate
Date Sampled			07/05/2025	07/05/2025
Ammonia as N	mg/L	0.0050	[NA]	0.15
Nitrate as N	mg/L	0.0050	[NA]	<0.0050
Nitrate as NO3 by calculation	mg/L	0.020	[NA]	<0.020
Nitrite as N	mg/L	0.0050	[NA]	<0.0050
Nitrite as NO2 by calculation	mg/L	0.020	[NA]	<0.020
NOx as N	mg/L	0.0050	[NA]	<0.0050
TKN as N by calculation	mg/L	0.10	[NA]	0.49
Total Nitrogen	mg/L	0.10	9.0	0.49
Phosphate as P	mg/L	0.0050	[NA]	0.0093

Certificate of Analysis PGE0566

Inorganics - Common Wastewater Parameters (Water)

Envirolab ID	Units	PQL	PGE0566-08	PGE0566-09
Your Reference			MTM-WWTP-Station ge2	MTM-WWTP-Station ge3
Date Sampled			07/05/2025	07/05/2025
BOD	mg/L	5.0	7.9	9.0

Certificate of Analysis PGE0566

Microbiological Suite (Water)

Envirolab ID	Units	PQL	PGE0566-08	PGE0566-09
Your Reference			MTM-WWTP-Station ge2	MTM-WWTP-Station ge3
Date Sampled			07/05/2025	07/05/2025
Thermotolerant Coliforms	cfu/100mL	1	<10	11000
E.coli	cfu/100mL	1	<10	11000

Certificate of Analysis PGE0566

Subcontracted Radiological - Certificate: ME372576 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGE0566-05	PGE0566-06	PGE0566-07
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			07/05/2025	07/05/2025	07/05/2025
Gross alpha	Bq/L		23.3	1.52	0.759
Gross beta	Bq/L		27.8	0.766	0.324
Lead-210	Bq/L		1.3	<0.18	<0.12
Radium 226	Bq/L		12.6	0.713	0.045
Radium 228	Bq/L		19	0.399	<0.08

Certificate of Analysis PGE0566

Subcontracted Radiological - Potassium 40 - Certificate: ME372576 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGE0566-05	PGE0566-06	PGE0566-07
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			07/05/2025	07/05/2025	07/05/2025
Potassium-40	Bq/L		8.2	7.3	0.76

Certificate of Analysis PGE0566

Result Comments

Identifier	Description
[3]	PQL(s) has/have been raised due to the high concentration of analyte(s) in the sample, resulting in the sample requiring a dilution.
[4]	PQL has been raised due to matrix requiring dilution
[7]	cloudy with precipitate

Certificate of Analysis PGE0566

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG 026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-091	BOD and/or cBOD - Analysed in accordance with APHA latest edition 5210 D.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
MICRO-001B	E. coli/Thermotolerant coliforms: Microbial Water Analysis - in accordance with MICRO-001 (AS4276.5-latest edition). Recommended maximums based on NHMRC Australian Drinking Water Guidelines. Please note that results for this test derived from counts outside of the range 10-80 are considered approximate as per AS4276.1.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGE0566

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGE0566

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGE0566

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	Mount Marion MTM Groundwater - Quarterly
Date Issued	18/06/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGE0566

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Total Phosphorus Water	1, 3, 8-9	07/05/2025	13/05/2025	14/05/2025	Yes
	2, 4, 10	07/05/2025	13/05/2025	15/05/2025	Yes
Dissolved Metals Water	1, 3	07/05/2025	12/05/2025	13/05/2025	Yes
	2, 4, 10	07/05/2025	12/05/2025	14/05/2025	Yes
Dissolved Metals (LL) Water	1-3	07/05/2025	12/05/2025	14/05/2025	Yes
	4, 10	07/05/2025	12/05/2025	15/05/2025	Yes
	5	07/05/2025	22/05/2025	23/05/2025	Yes
	6-7	07/05/2025	22/05/2025	26/05/2025	Yes
Dissolved Metals (LL)-Hg Water	1-4, 10	07/05/2025	13/05/2025	13/05/2025	Yes
Colour-True Water	1-4, 10	07/05/2025	12/05/2025	13/05/2025	Yes
EC Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
pH Water	1-4, 8-10	07/05/2025	12/05/2025	12/05/2025	No
pH (True Colour) Water	1-4, 10	07/05/2025	12/05/2025	13/05/2025	No
TDS Water	1-4, 10	07/05/2025	15/05/2025	15/05/2025	No
TSS Water	1-4, 8-10	07/05/2025	15/05/2025	15/05/2025	No
Turbidity Water	1-4, 10	07/05/2025	15/05/2025	15/05/2025	No
Turbidity (filtered) Water	1-4, 10	07/05/2025	13/05/2025	13/05/2025	No
Alkalinity Suite Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Chloride Water	1-4, 10	07/05/2025	09/05/2025	12/05/2025	Yes
Dissolved Cations Water	1, 3	07/05/2025	12/05/2025	13/05/2025	Yes
	2, 4, 10	07/05/2025	12/05/2025	14/05/2025	Yes
Ion Balance Water	1-4, 10	07/05/2025	13/05/2025	23/05/2025	Yes
Sulfate Water	1-4, 10	07/05/2025	09/05/2025	12/05/2025	Yes
Fluoride Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Ferrous Iron Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Nitrogen - Ammonia Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Nitrogen - Nitrate Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Nitrogen - Nitrite Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	No
Nitrogen - NOx Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	No
Nitrogen - Total N Water	1-4, 8	07/05/2025	16/05/2025	16/05/2025	Yes
	9-10	07/05/2025	16/05/2025	17/05/2025	Yes
Phosphate as P Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	No
TKN as N calc Water	1-4, 10	07/05/2025	13/05/2025	23/05/2025	Yes
BOD Water	8-9	07/05/2025	20/05/2025	26/05/2025	Yes
E. coli & T.T.coli Water	8-9	07/05/2025	08/05/2025	08/05/2025	Yes
Gross alpha & beta Water	5-7	07/05/2025	15/05/2025	28/05/2025	Yes
Lead 210 Water	5-7	07/05/2025	30/05/2025	13/06/2025	Yes
Radium 226 & 228 Water	5-7	07/05/2025	30/05/2025	13/06/2025	Yes
GROSS_ALPHA_BETA_SGS Water	5-7	07/05/2025	28/05/2025	28/05/2025	Yes

Data Quality Assessment Summary PGE0566

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
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Outliers: Matrix Spike

INORG-055 | Inorganics - Nutrients (Water) | Batch BGE1756

Sample ID	Analyte	% Limits	% Recovery
BGE1756-MS2#	Nitrite as N	70 - 130	##[2]

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGE1795

Sample ID	Analyte	% Limits	% Recovery
PGE0566-02	Ferrous Iron	70 - 130	##[2]

METALS-020 | Acid Extractable Metals (Water) | Batch BGE2039

Sample ID	Analyte	% Limits	% Recovery
BGE2039-MS1#	Phosphorus	70 - 130	##[2]

METALS-020 | Dissolved Metals (Water) | Batch BGE1939

Sample ID	Analyte	% Limits	% Recovery
BGE1939-MS1#	Silicon	70 - 130	##[2]

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1939

Sample ID	Analyte	% Limits	% Recovery
BGE1939-MS1#	Sodium	70 - 130	##[1]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE1937

Sample ID	Analyte	% Limits	% Recovery
BGE1937-MS1#	Strontium	70 - 130	##[1]

Outliers: QC Frequency

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGE3257

Analysis	QC Type	Expected	Reported
BOD	Duplicate	2	0

Quality Control PGE0566

METALS-020 | Acid Extractable Metals (Water) | Batch BGE2039

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE2039-DUP1# Samp QC RPD %	BGE2039-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	53.6 43.2 21.4	<0.050 <0.050 [NA]	110	##[2]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGE1939

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1939-DUP1# Samp QC RPD %	PGE0566-03 Samp QC RPD %		
Silicon	mg/L	0.10	<0.10	3.34 3.35 0.323	26.3 26.3 0.125	99.7	##[2]
Silica	mg/L	0.20	<0.20	7.15 7.17 0.323	56.3 56.4 0.125	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE1937

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1937-DUP1# Samp QC RPD %	PGE0566-03 Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	96.4	91.5
Arsenic	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0404 0.0390 3.42	100	100
Barium	mg/L	0.0010	<0.0010	0.00808 0.00816 0.960	1.63 1.66 1.88	104	104
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	102	107
Boron	mg/L	0.020	<0.020	0.0684 0.0691 [NA]	4.16 4.19 0.719	86.4	103
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	0.000200 0.000200 [NA]	103	103
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00934 0.00874 6.64	100	98.3
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.176 0.173 2.08	100	97.4
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0116 0.0115 0.605	101	93.5
Iron	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	0.250 0.252 0.790	98.5	99.9
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	99.4	96.5
Lithium	mg/L	0.0010	<0.0010	0.00331 0.00324 [NA]	0.940 0.940 0.00	106	107
Manganese	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	19.0 18.7 1.90	98.1	94.8
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0143 0.0143 0.0699	99.8	111
Nickel	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.347 0.339 2.24	99.7	92.1
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00935 0.00900 3.81	103	104
Strontium	mg/L	0.0010	<0.0010	1.52 1.56 2.56	19.2 18.5 3.52	97.6	##[1]
Titanium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	92.7	97.8
Vanadium	mg/L	0.0010	<0.0010	0.00581 0.00601 3.38	0.0327 0.0315 3.93	103	102
Zinc	mg/L	0.0010	<0.0010	0.00144 0.00151 [NA]	0.101 0.101 0.762	102	91.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGE2032

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE2032-DUP1# Samp QC RPD %	PGE0566-03 Samp QC RPD %		
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	99.6	86.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE3968

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGE0566-05 Samp QC RPD %	BGE3968-DUP2# Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.145 0.145 0.00828	0.00476 0.00492 [NA]	95.9	98.8
Thorium	mg/L	0.00050	<0.00050	0.000573 <0.00050 [NA]	<0.0010 <0.0010 [NA]	98.0	91.0
Uranium	mg/L	0.0010	<0.0010	0.114 0.113 0.837	0.0158 0.0157 1.02	103	101

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0566

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE3969

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGE0566-06 Samp QC RPD %	BGE3969-DUP2# Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	1.38 1.28 7.57	0.00985 0.00977 0.846	103	84.4
Thorium	mg/L	0.00050	0.00050	0.00121 <0.00050 [NA] [6]	0.00050 0.00050 [NA]	93.5	87.4
Uranium	mg/L	0.0010	<0.0010	0.0602 0.0530 12.6	<0.0010 <0.0010 [NA]	99.9	85.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGE1756

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE1756-DUP1# Samp QC RPD %	BGE1756-DUP2# Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	101
Analyte	Units	PQL	Blank			LCS %
Colour (True)	PCU	5.0	<5.0			[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGE1781

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566-01 Samp QC RPD %	BGE1781-DUP2# Samp QC RPD %	
pH	pH units		5.5	7.8 7.8 0.515	7.2 7.2 0.279	103
Electrical Conductivity	µS/cm	2.0	2.00	4610 4590 0.478	860 861 0.174	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGE1962

Analyte	Units	PQL	Blank	DUP1	LCS %
				PGE0566-01 Samp QC RPD %	
pH (True Colour)	pH units			7.6 7.6 0.00	102

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGE2083

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE2083-DUP1# Samp QC RPD %	PGE0566-01 Samp QC RPD %	
Turbidity (filtered)	NTU	0.10	<0.10	0.200 0.200 [NA]	0.350 0.350 [NA]	90.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGE2479

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE2479 DUP1# Samp QC RPD %	BGE2479 DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	5.0	24.0 26.0 8.00	5.0 5.0 [NA]	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGE2480

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE2480-DUP1# Samp QC RPD %	BGE2480-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	3760 3760 0.00	<5.0 <5.0 [NA]	114

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0566

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGE2481

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566-04 Samp QC RPD %	BGE2481-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	23800 23300 2.21	3820 3950 3.35	114

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGE2482

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE2482-DUP1# Samp QC RPD %	BGE2482-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	2560 2740 6.91	667 660 1.06	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGE2483

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566-04 Samp QC RPD %	BGE2483-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	INS INS [NA] [5]	INS INS [NA] [5]	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGE2591

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566-01 Samp QC RPD %	BGE2591-DUP2# Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	101 99.8 1.20	0.650 0.700 7.41	100

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1736

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike % PGE0566-02
				PGE0566-01 Samp QC RPD %	BGE1736-DUP2# Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	928 997 7.23	340 345 1.31	87.2	80.8
Sulfate	mg/L	1.0	<1.0	383 418 8.75	<1.0 <1.0 [NA]	84.4	108

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1781

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566 01 Samp QC RPD %	BGE1781 DUP2# Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	5.0	519 560 7.51	243 234 3.91	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	519 560 7.51	243 234 3.91	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1939

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike % BGE1939-MS1#
				BGE1939-DUP1# Samp QC RPD %	PGE0566-03 Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	97.7 97.6 0.0533	237 235 1.16	81.5	83.5
Magnesium	mg/L	0.50	<0.50	28.6 28.9 1.30	916 906 1.14	85.3	98.2
Potassium	mg/L	0.50	<0.50	1.50 1.51 [NA]	47.9 48.6 1.40	83.9	87.8
Sodium	mg/L	0.50	0.50	114 115 0.270	3590 3560 0.868	81.8	##[1]
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	361 363 0.389	4370 4320 1.14	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0566

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGE1791

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1791-DUP1# Samp QC RPD %	BGE1791-DUP2# Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	3.42 3.53 3.16	0.795 0.845 6.10	102	104

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGE1795

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGE0566-01 Samp QC RPD %	BGE1795-DUP2# Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	<0.050 <0.050 [NA]	0.673 0.678 0.737	117	##[2]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-057 | Inorganics - Nutrients (Water) | Batch BGE1756

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1756-DUP1# Samp QC RPD %	BGE1756-DUP2# Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	99.7	98.6
Nitrate as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	4.30 4.32 0.433	87.3	116
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	114	##[2]
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	4.30 4.32 0.442	87.3	114
Phosphate as P	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0181 0.0176 [NA]	111	123

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGE2727

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE2727-DUP1# Samp QC RPD %	PGE0566-08 Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	444 454 2.07	17.5 17.3 1.17	118	96.7

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

MICRO-001B | Microbiological Suite (Water) | Batch BGE1538

Analyte	Units	PQL	Blank	LCS %			
Thermotolerant Coliforms	cfu/100mL	1	<1				[NA]
E.coli	cfu/100mL	1	<1				[NA]

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[5]	Note: There was insufficient sample to perform all QC according to our internal guidelines.
[6]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.

Certificate of Analysis PGH0791

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Contact	██████████
Address	20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference	MTM Groundwater - Quarterly
Number of Samples	6 Water
Date Samples Received	13/08/2025
Date Instructions Received	13/08/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Final Results Expected	14/10/2025
Date of Reissue	08/10/2025 - This report supercedes previous report, see amendment history for details

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Authorisation Details

Results Approved By	Ben Carpenter, Metals Technician Lien Tang, Assistant Operations Manager Lucas Yij, Inorganics Team Leader Michael Mowle, Development Chemist - Inorganics and Metals Varsha Ho Wing, Inorganics and Metals Supervisor
Laboratory Manager	Michael Kubiak

Certificate of Analysis PGH0791

Report Amendment History

Revision	Reason for Amendment
R-01	Subcon results added.

Certificate of Analysis PGH0791

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PGH0791-01	MTM-PRW-TN001	Water	12/08/2025	13/08/2025
PGH0791-02	MTM-PRW-TN004	Water	12/08/2025	13/08/2025
PGH0791-03	MTM-MB21MMN02B	Water	12/08/2025	13/08/2025
PGH0791-04	MTM-MB21WRD01B	Water	12/08/2025	13/08/2025
PGH0791-05	MTM-MB21WRD03B	Water	12/08/2025	13/08/2025
PGH0791-06	MTM-MB21WRD04B	Water	12/08/2025	13/08/2025

Certificate of Analysis PGH0791

Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGH0791-03	PGH0791-04	PGH0791-05	PGH0791-06
Your Reference			MTM-MB21MMN 02B	MTM-MB21WRD 01B	MTM-MB21WRD 03B	MTM-MB21WRD 04B
Date Sampled			12/08/2025	12/08/2025	12/08/2025	12/08/2025
Phosphorus	mg/L	0.050	0.22	<0.050	<0.050	0.062

Certificate of Analysis PGH0791

Dissolved Metals (Water)

Envirolab ID	Units	PQL	PGH0791-03	PGH0791-04	PGH0791-05	PGH0791-06
Your Reference			MTM-MB21MMN 02B	MTM-MB21WRD 01B	MTM-MB21WRD 03B	MTM-MB21WRD 04B
Date Sampled			12/08/2025	12/08/2025	12/08/2025	12/08/2025
Silicon	mg/L	0.10	25	22	7.3	18
Silica*	mg/L	0.20	54	48	16	39

Certificate of Analysis PGH0791

Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGH0791-01 MTM-PRW-TN00 1	PGH0791-02 MTM-PRW-TN00 4	PGH0791-03 MTM-MB21MMN 02B	PGH0791-04 MTM-MB21WRD 01B	PGH0791-05 MTM-MB21WRD 03B
Date Sampled			12/08/2025	12/08/2025	12/08/2025	12/08/2025	12/08/2025
Aluminium	mg/L	0.010	[NA]	[NA]	0.056	0.015	0.044
Arsenic	mg/L	0.0010	[NA]	[NA]	<0.0010	0.0052	<0.0020 [4]
Boron	mg/L	0.020	[NA]	[NA]	3.4	1.6	9.9
Barium	mg/L	0.0010	[NA]	[NA]	0.027	0.065	0.056
Beryllium	mg/L	0.00050	[NA]	[NA]	<0.00050	<0.00050	<0.0010 [4]
Cadmium	mg/L	0.00010	[NA]	[NA]	<0.00010	<0.00010	<0.00020 [4]
Cobalt	mg/L	0.0010	[NA]	[NA]	0.013	0.0095	0.012
Chromium	mg/L	0.0010	[NA]	[NA]	<0.0010	<0.0010	<0.0020 [4]
Copper	mg/L	0.0010	[NA]	[NA]	<0.0010	0.0047	<0.0020 [4]
Iron	mg/L	0.010	[NA]	[NA]	1800	0.024	0.042
Mercury	mg/L	0.000050	[NA]	[NA]	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.0010	[NA]	[NA]	1.8	1.7	1.5
Manganese	mg/L	0.0010	[NA]	[NA]	11	0.065	2.5
Molybdenum	mg/L	0.0010	[NA]	[NA]	0.0012	0.0052	0.0043
Nickel	mg/L	0.0010	[NA]	[NA]	0.019	0.0080	0.035
Lead	mg/L	0.0010	[NA]	[NA]	<0.0010	<0.0010	<0.0020 [4]
Rubidium*	mg/L	0.0010	1.3	1.5	[NA]	[NA]	[NA]
Selenium	mg/L	0.0010	[NA]	[NA]	<0.0010	0.0054	<0.0020 [4]
Strontium	mg/L	0.0010	[NA]	[NA]	0.45	0.66	2.2
Thorium	mg/L	0.00050	0.0025	<0.00050	[NA]	[NA]	[NA]
Titanium	mg/L	0.0010	[NA]	[NA]	<0.0010	<0.0010	<0.0020 [4]
Uranium	mg/L	0.0010	0.062	0.32	[NA]	[NA]	[NA]
Vanadium	mg/L	0.0010	[NA]	[NA]	<0.0010	0.011	0.0050
Zinc	mg/L	0.0010	[NA]	[NA]	4.1	0.040	<0.0020 [4]

Envirolab ID Your Reference	Units	PQL	PGH0791-06 MTM-MB21WRD 04B
Date Sampled			12/08/2025
Aluminium	mg/L	0.010	0.072
Arsenic	mg/L	0.0010	0.0045
Boron	mg/L	0.020	10
Barium	mg/L	0.0010	0.069
Beryllium	mg/L	0.00050	<0.00050
Cadmium	mg/L	0.00010	0.00024
Cobalt	mg/L	0.0010	0.022
Chromium	mg/L	0.0010	<0.0010
Copper	mg/L	0.0010	0.0031
Iron	mg/L	0.010	0.029
Mercury	mg/L	0.000050	<0.000050
Lithium	mg/L	0.0010	1.2
Manganese	mg/L	0.0010	3.6
Molybdenum	mg/L	0.0010	0.0072
Nickel	mg/L	0.0010	0.10
Lead	mg/L	0.0010	<0.0010
Rubidium*	mg/L	0.0010	[NA]

Certificate of Analysis PGH0791

Dissolved Low Level Metals (Water)

Envirolab ID	Units	PQL	PGH0791-06
Your Reference			MTM-MB21WRD
Date Sampled			04B
			12/08/2025
Selenium	mg/L	0.0010	<0.0010
Strontium	mg/L	0.0010	0.80
Thorium	mg/L	0.00050	[NA]
Titanium	mg/L	0.0010	<0.0010
Uranium	mg/L	0.0010	[NA]
Vanadium	mg/L	0.0010	0.0086
Zinc	mg/L	0.0010	<0.0010

Certificate of Analysis PGH0791

Inorganics - Physical Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGH0791-03 MTM-MB21MMN 02B	PGH0791-04 MTM-MB21WRD 01B	PGH0791-05 MTM-MB21WRD 03B	PGH0791-06 MTM-MB21WRD 04B
Date Sampled			12/08/2025	12/08/2025	12/08/2025	12/08/2025
pH	pH units		5.4	7.7	7.4	7.6
pH (True Colour)	pH units		4.4	8.3	7.9	8.2
Electrical Conductivity	µS/cm	2.0	21000	4400	51000	34000
Total Dissolved Solids	mg/L	5.0	18000	3200	40000	27000
Total Suspended Solids	mg/L	5.0	780	33	12	5.5
Turbidity	NTU	0.10	600 [7]	5.2	2.4	2.1
Turbidity (filtered)*	NTU	0.10	360 [8]	0.25	0.27	0.40
Colour (True)	PCU	5.0	570	11	<5.0	<5.0

Certificate of Analysis PGH0791

Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference	Units	PQL	PGH0791-03 MTM-MB21MMN 02B	PGH0791-04 MTM-MB21WRD 01B	PGH0791-05 MTM-MB21WRD 03B	PGH0791-06 MTM-MB21WRD 04B
Date Sampled			12/08/2025	12/08/2025	12/08/2025	12/08/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	27	510	150	940
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	27	510	150	940
Chloride	mg/L	1.0	7200	1200	20000	14000
Sulfate	mg/L	1.0	4800	380	4900	3200
Calcium	mg/L	0.50	310	78	120	100
Magnesium	mg/L	0.50	650	160	1800	1000
Potassium	mg/L	0.50	46	20	130	140
Sodium	mg/L	0.50	2800	630	9900	6700
Hardness (calc) equivalent CaCO3	mg/L	3.0	3400	850	7900	4500
Ionic Balance	%		-23 [1]	-8.5	-6.0	-9.9

Certificate of Analysis PGH0791

Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGH0791-03	PGH0791-04	PGH0791-05	PGH0791-06
Your Reference			MTM-MB21MMN 02B	MTM-MB21WRD 01B	MTM-MB21WRD 03B	MTM-MB21WRD 04B
Date Sampled			12/08/2025	12/08/2025	12/08/2025	12/08/2025
Fluoride	mg/L	0.10	<1.0 [4]	<1.0 [4]	<1.0 [4]	<1.0 [4]

Certificate of Analysis PGH0791

Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGH0791-03	PGH0791-04	PGH0791-05	PGH0791-06
Your Reference			MTM-MB21MMN 02B	MTM-MB21WRD 01B	MTM-MB21WRD 03B	MTM-MB21WRD 04B
Date Sampled			12/08/2025	12/08/2025	12/08/2025	12/08/2025
Ferrous Iron	mg/L	0.050	1600	<0.050	<0.050	<0.050

Certificate of Analysis PGH0791

Inorganics - Nutrients (Water)

Envirolab ID Your Reference	Units	PQL	PGH0791-03 MTM-MB21MMN 02B	PGH0791-04 MTM-MB21WRD 01B	PGH0791-05 MTM-MB21WRD 03B	PGH0791-06 MTM-MB21WRD 04B
Date Sampled			12/08/2025	12/08/2025	12/08/2025	12/08/2025
Ammonia as N	mg/L	0.0050	0.61	0.0072	0.033	0.073
Nitrate as N	mg/L	0.0050	0.067	10	0.016	0.0054
Nitrate as NO3 by calculation	mg/L	0.020	0.30	46	0.073	0.024
Nitrite as N	mg/L	0.0050	<0.050 [5]	0.12	<0.0050	<0.0050
Nitrite as NO2 by calculation	mg/L	0.020	<0.20 [5]	<0.40 [5]	<0.020	<0.020
NOx as N	mg/L	0.0050	0.071	11	0.017	0.0063
TKN as N by calculation	mg/L	0.10	0.86	1.5	0.21	0.45
Total Nitrogen	mg/L	0.10	0.93	12	0.23	0.46
Phosphate as P	mg/L	0.0050	<0.050 [5]	0.022	0.027	0.063

Certificate of Analysis PGH0791

Subcontracted Radiological - Radium 226 and 228 - Certificate: ME384462 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGH0791-01	PGH0791-02
Your Reference			MTM-PRW-TN00 1	MTM-PRW-TN00 4
Date Sampled			12/08/2025	12/08/2025
Radium 226	Bq/L		0.775	2.53
Radium 228	Bq/L		0.402	0.341

Certificate of Analysis PGH0791

Subcontracted Radiological - Certificate: ME384462 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGH0791-01	PGH0791-02
Your Reference			MTM-PRW-TN00 1	MTM-PRW-TN00 4
Date Sampled			12/08/2025	12/08/2025
Gross alpha	Bq/L		0.928	8.82
Gross beta	Bq/L		0.711	1.83
Lead-210	Bq/L		<0.14	<0.38

Certificate of Analysis PGH0791

Subcontracted Radiological - Potassium 40 - Certificate: ME384462 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGH0791-01	PGH0791-02
Your Reference			MTM-PRW-TN00 1	MTM-PRW-TN00 4
Date Sampled			12/08/2025	12/08/2025
Potassium-40	Bq/L		9.2	2.6

Certificate of Analysis PGH0791

Result Comments

Identifier	Description
[1]	The mass imbalance may be caused by other ions that have not been measured.
[4]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[5]	PQL(s) has/have been raised due to matrix interference.
[7]	Pale Brown Cloudy Solution
[8]	Pale Yellow Cloudy Solution

Certificate of Analysis PGH0791

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed. Blanks may yield EC readings >1µS/cm, this is likely due to adsorption of Carbon Dioxide while the blank sample is sat on the instrument autosampler prior to analysis. The values are generally insignificant (<5µS/cm) compared to most actual sample conductivities.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG-026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGH0791

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGH0791

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGH0791

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	MTM Groundwater - Quarterly
Date Issued	08/10/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGH0791

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Total Phosphorus Water	3-6	12/08/2025	15/08/2025	18/08/2025	Yes
Dissolved Metals Water	3-4	12/08/2025	15/08/2025	19/08/2025	Yes
	5-6	12/08/2025	15/08/2025	20/08/2025	Yes
Dissolved Metals (LL) Water	3-6	12/08/2025	15/08/2025	18/08/2025	Yes
	1-2	12/08/2025	28/08/2025	28/08/2025	Yes
Dissolved Metals (LL)-Hg Water	3-6	12/08/2025	18/08/2025	18/08/2025	Yes
Colour-True Water	3-6	12/08/2025	14/08/2025	14/08/2025	Yes
EC Water	3-6	12/08/2025	14/08/2025	14/08/2025	Yes
pH Water	3-6	12/08/2025	14/08/2025	14/08/2025	No
pH (True Colour) Water	3-6	12/08/2025	14/08/2025	15/08/2025	No
TDS Water	3-6	12/08/2025	15/08/2025	16/08/2025	Yes
TSS Water	3-6	12/08/2025	15/08/2025	16/08/2025	Yes
Turbidity Water	3-6	12/08/2025	13/08/2025	15/08/2025	Yes
Turbidity (filtered) Water	3-6	12/08/2025	13/08/2025	15/08/2025	Yes
Alkalinity Suite Water	3-6	12/08/2025	14/08/2025	14/08/2025	Yes
Chloride Water	3-5	12/08/2025	14/08/2025	15/08/2025	Yes
	6	12/08/2025	14/08/2025	18/08/2025	Yes
Dissolved Cations Water	3-4	12/08/2025	15/08/2025	19/08/2025	Yes
	5-6	12/08/2025	15/08/2025	20/08/2025	Yes
Ion Balance Water	3-6	12/08/2025	15/08/2025	22/08/2025	Yes
Sulfate Water	3-5	12/08/2025	14/08/2025	15/08/2025	Yes
	6	12/08/2025	14/08/2025	18/08/2025	Yes
Fluoride Water	3-6	12/08/2025	15/08/2025	20/08/2025	Yes
Ferrous Iron Water	3-6	12/08/2025	14/08/2025	15/08/2025	Yes
Nitrogen - Ammonia Water	4-6	12/08/2025	14/08/2025	14/08/2025	Yes
	3	12/08/2025	14/08/2025	15/08/2025	Yes
Nitrogen - Nitrate Water	5-6	12/08/2025	14/08/2025	14/08/2025	Yes
	3	12/08/2025	14/08/2025	15/08/2025	Yes
	4	12/08/2025	14/08/2025	21/08/2025	Yes
Nitrogen - Nitrite Water	5-6	12/08/2025	14/08/2025	14/08/2025	Yes
	3	12/08/2025	14/08/2025	15/08/2025	Yes
	4	12/08/2025	14/08/2025	21/08/2025	Yes
Nitrogen - NOx Water	5-6	12/08/2025	14/08/2025	14/08/2025	Yes
	3	12/08/2025	14/08/2025	15/08/2025	Yes
	4	12/08/2025	14/08/2025	21/08/2025	Yes
Nitrogen - Total N Water	3-4, 6	12/08/2025	19/08/2025	20/08/2025	Yes
	5	12/08/2025	19/08/2025	21/08/2025	Yes
Phosphate as P Water	4-6	12/08/2025	14/08/2025	14/08/2025	Yes
	3	12/08/2025	14/08/2025	15/08/2025	Yes
TKN as N calc Water	3-6	12/08/2025	15/08/2025	22/08/2025	Yes

Data Quality Assessment Summary PGH0791

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Radium 226 & 228 Water	1-2	12/08/2025	21/08/2025	08/10/2025	Yes
Gross alpha & beta Water	1-2	12/08/2025	19/08/2025	01/09/2025	Yes
Lead 210 Water	1-2	12/08/2025	21/08/2025	08/10/2025	Yes
GROSS_ALPHA_BETA_SGS Water	1-2	12/08/2025	01/09/2025	01/09/2025	Yes

Outliers: Matrix Spike

INORG-060 | Inorganics - Nutrients (Water) | Batch BGH2153

Sample ID	Analyte	% Limits	% Recovery
BGH2153-MS1#	Phosphate as P	70 - 130	##[3]

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2596

Sample ID	Analyte	% Limits	% Recovery
BGH2596-MS1#	Sodium	70 - 130	##[2]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGH4669

Sample ID	Analyte	% Limits	% Recovery
PGH0791-02	Rubidium	70 - 130	##[2]
PGH0791-02	Uranium	70 - 130	##[2]

Quality Control PGH0791

METALS-020 | Acid Extractable Metals (Water) | Batch BGH2618

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2618-DUP1# Samp QC RPD %	BGH2618-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	0.0600 0.0592 [NA]	0.0610 0.0557 [NA]	105	95.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGH2596

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2596-DUP1# Samp QC RPD %	BGH2596-DUP2# Samp QC RPD %		
Silicon	mg/L	0.1		3.05 3.06 0.458	10.1 10.1 0.0694	105	90.7
Silica	mg/L	0.20	<0.20	6.52 6.55 0.458	21.6 21.6 0.0694	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGH2595

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2595-DUP1# Samp QC RPD %	BGH2595-DUP2# Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	0.0291 0.0287 [NA]	<0.010 <0.010 [NA]	104	98.9
Arsenic	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	100	101
Barium	mg/L	0.0010	<0.0010	0.0304 0.0303 0.543	0.0858 0.0863 0.621	101	101
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	101	104
Boron	mg/L	0.020	<0.020	0.0512 0.0530 [NA]	0.0345 0.0351 [NA]	93.1	94.7
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.00010 <0.00010 [NA]	102	102
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	100	101
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00102 0.00104 [NA]	99.7	98.8
Copper	mg/L	0.0010	<0.0010	0.00200 0.00199 [NA]	0.00462 0.00465 [NA]	97.2	94.1
Iron	mg/L	0.010	<0.010	0.286 0.284 0.725	0.0193 0.0193 [NA]	105	84.7
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	96.4	93.7
Lithium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00180 0.00171 [NA]	101	103
Manganese	mg/L	0.0010	<0.0010	0.00801 0.00797 0.526	0.00360 0.00374 [NA]	101	97.6
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	102	103
Nickel	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00143 0.00149 [NA]	98.1	94.4
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00160 0.00165 [NA]	107	102
Strontium	mg/L	0.0010	<0.0010	0.106 0.106 0.316	0.135 0.136 0.832	96.9	95.0
Titanium	mg/L	0.0010	<0.0010	0.00239 0.00241 [NA]	<0.0010 <0.0010 [NA]	104	103
Vanadium	mg/L	0.0010	<0.0010	0.00107 0.00107 [NA]	<0.0010 <0.0010 [NA]	101	102
Zinc	mg/L	0.0010	<0.0010	0.0127 0.0126 0.917	0.0152 0.0154 1.31	101	97.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGH2802

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2802-DUP1# Samp QC RPD %	BGH2802-DUP2# Samp QC RPD %		
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	101	98.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGH4669

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				PGH0791-01 Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	1.26 1.29 2.68	99.4	##[2]
Thorium	mg/L	0.00050	<0.00050	0.00251 0.000940 [NA] [6]	94.9	76.2
Uranium	mg/L	0.0010	<0.0010	0.0622 0.0612 1.65	101	##[2]

Quality Control PGH0791

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGH1981

Analyte	Units	PQL	Blank	DUP1	LCS %
				BGH1981-DUP1# Samp QC RPD %	
Turbidity (filtered)	NTU	0.10	<0.10	0.270 0.260 [NA]	99.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGH1988

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH1988-DUP1# Samp QC RPD %	PGH0791-05 Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	0.440 0.420 [NA]	2.44 2.45 0.409	99.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGH2153

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2153-DUP1# Samp QC RPD %	BGH2153-DUP2# Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	<5.0 <5.0 [NA]	65.9 63.8 3.18	92.4

Analyte	Units	PQL	Blank			LCS %
Colour (True)	PCU	5.0	<5.0			[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGH2212

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0791-05 Samp QC RPD %	BGH2212-DUP2# Samp QC RPD %	
pH	pH units		5.9	7.4 7.5 0.402	8.0 8.1 0.248	102
Electrical Conductivity	µS/cm	2.0	<2.0	51500 51200 0.446	923 922 0.163	95.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGH2347

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2347-DUP1# Samp QC RPD %	BGH2347-DUP2# Samp QC RPD %	
pH (True Colour)	pH units			8.2 8.2 0.00	8.3 8.3 0.121	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGH2541

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0791-03 Samp QC RPD %	BGH2541-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	17500 17800 1.70	134 134 0.00	112

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGH2542

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0791-03 Samp QC RPD %	BGH2542-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	782 764 2.33	<5.0 <5.0 [NA]	94.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0791

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2212

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0791-05 Samp QC RPD %	BGH2212-DUP2# Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	150 148 1.39	101 104 2.57	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	150 148 1.39	101 104 2.57	91.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2272

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2272-DUP1# Samp QC RPD %	PGH0791-06 Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	<1.0 <1.0 [NA]	13600 13500 0.772	100	114
Sulfate	mg/L	1.0	<1.0	<1.0 <1.0 [NA]	3250 3000 7.98	94.9	114

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2596

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2596-DUP1# Samp QC RPD %	BGH2596-DUP2# Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	24.1 24.5 1.42	10.2 10.2 0.0490	105	102
Magnesium	mg/L	0.50	<0.50	9.14 9.13 0.108	45.9 45.9 0.0741	105	99.6
Potassium	mg/L	0.50	<0.50	4.36 4.28 1.88	9.20 9.16 0.448	104	101
Sodium	mg/L	0.50	<0.50	47.1 47.6 0.862	300 300 0.0966	101	##[2]
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	97.8 98.7 0.835	214 215 0.0711	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGH2454

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGH0791-04 Samp QC RPD %	BGH2454-DUP2# Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	<1.0 <1.0 [NA] [4]	0.249 0.250 [NA]	97.4	99.6[4]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGH2150

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2150-DUP1# Samp QC RPD %	BGH2150-DUP2# Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	<0.050 <0.050 [NA]	<0.050 <0.050 [NA]	120	116

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-057 | Inorganics - Nutrients (Water) | Batch BGH2153

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2153-DUP1# Samp QC RPD %	BGH2153-DUP2# Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	3140 3480 10.5	98.7	102
Nitrate as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0950 0.0880 [NA]	112	118
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0588 0.0586 [NA]	106	112
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.154 0.147 [NA]	112	118
Phosphate as P	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0443 0.0429 3.19	116	##[3]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0791

INORG-127 | Inorganics - Nutrients (Water) | Batch BGH2908

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2908-DUP1# Samp QC RPD %	BGH2908-DUP2# Samp QC RPD %		BGH2908-MS1#
Total Nitrogen	mg/L	0.10	<0.10	65.1 66.0 1.44	15.7 15.5 0.985	105	91.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[2]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[3]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[4]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[6]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.

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Client Details

Client	Process Minerals International Pty Ltd (PMI)
Contact	██████████
Address	20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference	MTM Groundwater - Quarterly
Number of Samples	10 Water
Date Samples Received	14/08/2025
Date Instructions Received	14/08/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Final Results Expected	17/10/2025
Date of Reissue	15/10/2025 - This report supercedes previous report, see amendment history for details

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Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By	Ben Carpenter, Metals Technician Lien Tang, Assistant Operations Manager Lucas Yij, Inorganics Team Leader Michael Mowle, Development Chemist - Inorganics and Metals Sally Rogers, Senior Microbiological Analyst Travis Carey, Organics Supervisor Varsha Ho Wing, Inorganics and Metals Supervisor
Laboratory Manager	Michael Kubiak

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Report Amendment History

Revision	Reason for Amendment
R-01	Radionuclide results added.

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Samples in this Report

Envirolab ID	Sample ID	Description	Matrix	Date Sampled	Date Received
PGH0886-01	MTM-WWTP-Stage2	WWTP UNIT 1	Water	13/08/2025	14/08/2025
PGH0886-02	MTM-WWTP-Stage3	WWTP UNIT 2	Water	13/08/2025	14/08/2025
PGH0886-03	MTM-PB06		Water	13/08/2025	14/08/2025
PGH0886-04	MTM-PB10		Water	13/08/2025	14/08/2025
PGH0886-05	MTM-PB12		Water	13/08/2025	14/08/2025
PGH0886-06	MTM-MB19MMC02A		Water	13/08/2025	14/08/2025
PGH0886-07	MTM-MB19MMC03		Water	13/08/2025	14/08/2025
PGH0886-08	MTM-MB21WRD02B		Water	13/08/2025	14/08/2025
PGH0886-09	MTM-PRW-AMG OWS		Water	13/08/2025	14/08/2025
PGH0886-10	Duplicate		Water	13/08/2025	14/08/2025

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Volatile TRH and BTEX (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-09 MTM-PRW-AMG OWS 13/08/2025
TRH C6-C9	µg/L	10	<100 [2]
TRH C6-C10	µg/L	10	<100 [2]
TRH C6-C10 less BTEX (F1)	µg/L	10	<100
Methyl tert butyl ether (MTBE)	µg/L	1.0	<10 [2]
Benzene	µg/L	1.0	<10 [2]
Toluene	µg/L	1.0	<10 [2]
Ethylbenzene	µg/L	1.0	<10 [2]
meta+para Xylene	µg/L	2.0	<20 [2]
ortho-Xylene	µg/L	1.0	<10 [2]
Total +ve Xylenes	µg/L	1.0	<10
Naphthalene (value used in F2 calc)	µg/L	1.0	<10 [2]
Total +ve BTEX	µg/L	1.0	<10
<i>Surrogate Dibromofluoromethane</i>	%		<i>103</i>
<i>Surrogate Toluene-D8</i>	%		<i>96.5</i>
<i>Surrogate 4-Bromofluorobenzene</i>	%		<i>103</i>

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Semi-volatile TRH (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-09 MTM-PRW-AMG OWS 13/08/2025
Date Sampled			
TRH C10-C14	µg/L	50	520
TRH C15-C28	µg/L	100	1100
TRH C29-C36	µg/L	100	520
Total +ve TRH C10-C36	µg/L	50	2100
TRH >C10-C16	µg/L	50	270
TRH >C10-C16 less Naphthalene F2	µg/L	50	270
TRH >C16-C34 (F3)	µg/L	100	1400
TRH >C34-C40 (F4)	µg/L	100	270
Total +ve TRH >C10-C40	µg/L	50	1900
<i>Surrogate o-Terphenyl</i>	%		<i>94.1</i>

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Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGH0886-01	PGH0886-02	PGH0886-06	PGH0886-07	PGH0886-08
Your Reference			MTM-WWTP-Station 2 WWTP UNIT 1	MTM-WWTP-Station 3 WWTP UNIT 2	MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 02B
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025	13/08/2025
Phosphorus	mg/L	0.050	7.7	8.9	0.12	0.068	0.052

Envirolab ID	Units	PQL	PGH0886-10
Your Reference			Duplicate
Date Sampled			13/08/2025
Phosphorus	mg/L	0.050	0.055

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Dissolved Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03	PGH0886-08 MTM-MB21WRD 02B	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025
Silicon	mg/L	0.10	24	29	12	13
Silica*	mg/L	0.20	50	62	27	28

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-03 MTM-PB06	PGH0886-04 MTM-PB10	PGH0886-05 MTM-PB12	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025	13/08/2025
Aluminium	mg/L	0.010	[NA]	[NA]	[NA]	<0.010	<0.010
Arsenic	mg/L	0.0010	[NA]	[NA]	[NA]	0.018	0.0048
Boron	mg/L	0.020	[NA]	[NA]	[NA]	6.9	4.7
Barium	mg/L	0.0010	[NA]	[NA]	[NA]	0.046	0.13
Beryllium	mg/L	0.00050	[NA]	[NA]	[NA]	<0.00050	<0.00050
Cadmium	mg/L	0.00010	[NA]	[NA]	[NA]	<0.00010	<0.00010
Cobalt	mg/L	0.0010	[NA]	[NA]	[NA]	0.012	0.020
Chromium	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	0.0010
Copper	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	0.0025
Iron	mg/L	0.010	[NA]	[NA]	[NA]	0.026	0.017
Mercury	mg/L	0.000050	[NA]	[NA]	[NA]	<0.000050	<0.000050
Lithium	mg/L	0.0010	[NA]	[NA]	[NA]	2.4	0.79
Manganese	mg/L	0.0010	[NA]	[NA]	[NA]	1.1	1.8
Molybdenum	mg/L	0.0010	[NA]	[NA]	[NA]	0.0073	0.0018
Nickel	mg/L	0.0010	[NA]	[NA]	[NA]	0.092	0.043
Lead	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	<0.0010
Rubidium*	mg/L	0.0010	0.16	1.3	0.094	[NA]	[NA]
Selenium	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	0.0010
Strontium	mg/L	0.0010	[NA]	[NA]	[NA]	1.0	2.2
Thorium	mg/L	0.00050	0.0012	0.00057	<0.00050	[NA]	[NA]
Titanium	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	<0.0010
Uranium	mg/L	0.0010	0.10	0.058	0.0071	[NA]	[NA]
Vanadium	mg/L	0.0010	[NA]	[NA]	[NA]	0.0093	0.011
Zinc	mg/L	0.0010	[NA]	[NA]	[NA]	0.012	0.017

Envirolab ID Your Reference	Units	PQL	PGH0886-08 MTM-MB21WRD 02B	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025
Aluminium	mg/L	0.010	<0.020 [3]	<0.020 [3]
Arsenic	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Boron	mg/L	0.020	11	11
Barium	mg/L	0.0010	0.071	0.062
Beryllium	mg/L	0.00050	<0.0010 [3]	<0.0010 [3]
Cadmium	mg/L	0.00010	<0.00020 [3]	<0.00020 [3]
Cobalt	mg/L	0.0010	0.055	0.46
Chromium	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Copper	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Iron	mg/L	0.010	44	36
Mercury	mg/L	0.000050	<0.000050	<0.000050
Lithium	mg/L	0.0010	1.0	1.0
Manganese	mg/L	0.0010	12	11
Molybdenum	mg/L	0.0010	0.0024	0.014
Nickel	mg/L	0.0010	0.024	0.17
Lead	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Rubidium*	mg/L	0.0010	[NA]	[NA]

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-08 MTM-MB21WRD 02B	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025
Selenium	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Strontium	mg/L	0.0010	6.1	5.9
Thorium	mg/L	0.00050	[NA]	[NA]
Titanium	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Uranium	mg/L	0.0010	[NA]	[NA]
Vanadium	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Zinc	mg/L	0.0010	0.098	0.027

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Inorganics - Physical Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-01 MTM-WWTP-Station 2 ge2 WWTP UNIT 1	PGH0886-02 MTM-WWTP-Station 3 ge3 WWTP UNIT 2	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03	PGH0886-08 MTM-MB21WRD 02B
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025	13/08/2025
pH	pH units		7.8	7.6	7.7	7.4	6.7
pH (True Colour)	pH units		[NA]	[NA]	7.7	7.3	6.6
Electrical Conductivity	µS/cm	2.0	[NA]	[NA]	35000	23000	56000
Total Dissolved Solids	mg/L	5.0	[NA]	[NA]	24000	14000	44000
Total Suspended Solids	mg/L	5.0	<5.0	8.0	310	220	270
Turbidity	NTU	0.10	[NA]	[NA]	270 [7]	230 [7]	530 [6]
Turbidity (filtered)*	NTU	0.10	[NA]	[NA]	0.37	0.35	170 [7]
Colour (True)	PCU	5.0	[NA]	[NA]	<5.0	15	370

Envirolab ID Your Reference	Units	PQL	PGH0886-09 MTM-PRW-AMG OWS	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025
pH	pH units		7.8	6.8
pH (True Colour)	pH units		[NA]	6.6
Electrical Conductivity	µS/cm	2.0	7000	56000
Total Dissolved Solids	mg/L	5.0	[NA]	44000
Total Suspended Solids	mg/L	5.0	[NA]	220
Turbidity	NTU	0.10	[NA]	730 [6]
Turbidity (filtered)*	NTU	0.10	[NA]	140 [7]
Colour (True)	PCU	5.0	[NA]	320

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Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03	PGH0886-08 MTM-MB21WRD 02B	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	960	930	230	220
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	960	930	230	220
Chloride	mg/L	1.0	12000	7500	22000	22000
Sulfate	mg/L	1.0	3500	1900	3500	3500
Calcium	mg/L	0.50	74	240	270	260
Magnesium	mg/L	0.50	1100	930	1600	1600
Potassium	mg/L	0.50	120	55	250	250
Sodium	mg/L	0.50	6600	3600	11000	11000
Hardness (calc) equivalent CaCO3	mg/L	3.0	4600	4400	7100	7100
Ionic Balance	%		-6.0	-4.6	-4.3	-4.5

Certificate of Analysis PGH0886

Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGH0886-06	PGH0886-07	PGH0886-08	PGH0886-10
Your Reference			MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 02B	Duplicate
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025
Fluoride	mg/L	0.10	0.11	0.64	0.41	0.39

Certificate of Analysis PGH0886

Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGH0886-06	PGH0886-07	PGH0886-08	PGH0886-10
Your Reference			MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 02B	Duplicate
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025
Ferrous Iron	mg/L	0.050	<0.050	<0.050	41	38

Certificate of Analysis PGH0886

Inorganics - Nutrients (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-01 MTM-WWTP-Station 2 WWTP UNIT 1	PGH0886-02 MTM-WWTP-Station 3 WWTP UNIT 2	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03	PGH0886-08 MTM-MB21WRD 02B
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025	13/08/2025
Ammonia as N	mg/L	0.0050	[NA]	[NA]	0.12	0.017	0.17
Nitrate as N	mg/L	0.0050	[NA]	[NA]	0.25	0.27	<0.050 [4]
Nitrate as NO3 by calculation	mg/L	0.020	[NA]	[NA]	1.1	1.2	<0.20 [4]
Nitrite as N	mg/L	0.0050	[NA]	[NA]	<0.0050	0.0097	<0.050 [4]
Nitrite as NO2 by calculation	mg/L	0.020	[NA]	[NA]	<0.020	0.032	<0.20 [4]
NOx as N	mg/L	0.0050	[NA]	[NA]	0.25	0.28	<0.050 [4]
TKN as N by calculation	mg/L	0.10	[NA]	[NA]	0.48	0.61	0.82
Total Nitrogen	mg/L	0.10	16	26	0.74	0.89	0.83
Phosphate as P	mg/L	0.0050	[NA]	[NA]	0.059	0.026	<0.050 [4]

Envirolab ID Your Reference	Units	PQL	PGH0886-10 Duplicate
Date Sampled			13/08/2025
Ammonia as N	mg/L	0.0050	0.20
Nitrate as N	mg/L	0.0050	<0.050 [4]
Nitrate as NO3 by calculation	mg/L	0.020	<0.20 [4]
Nitrite as N	mg/L	0.0050	<0.050 [4]
Nitrite as NO2 by calculation	mg/L	0.020	<0.20 [4]
NOx as N	mg/L	0.0050	<0.050 [4]
TKN as N by calculation	mg/L	0.10	1.2
Total Nitrogen	mg/L	0.10	1.2
Phosphate as P	mg/L	0.0050	<0.050 [4]

Certificate of Analysis PGH0886

Inorganics - Common Wastewater Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-01 MTM-WWTP-Station 2 ge2 WWTP UNIT 1	PGH0886-02 MTM-WWTP-Station 3 ge3 WWTP UNIT 2	PGH0886-09 MTM-PRW-AMG OWS
Date Sampled			13/08/2025	13/08/2025	13/08/2025
BOD	mg/L	5.0	7.9	6.8	[NA]
MBAS	mg/L	0.10	[NA]	[NA]	0.41

Certificate of Analysis PGH0886

Microbiological Suite (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-01 MTM-WWTP-Sta ge2 WWTP UNIT 1	PGH0886-02 MTM-WWTP-Sta ge3 WWTP UNIT 2
Date Sampled			13/08/2025	13/08/2025
Thermotolerant Coliforms	cfu/100mL	1	<10	<10
E.coli	cfu/100mL	1	<10	<10

Certificate of Analysis PGH0886

Subcontracted Radiological - Radium 226 and 228 - Certificate: ME384482 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGH0886-03	PGH0886-04	PGH0886-05
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			13/08/2025	13/08/2025	13/08/2025
Radium 226	Bq/L		11.6	0.864	<0.045
Radium 228	Bq/L		12.9	0.48	<0.15

Certificate of Analysis PGH0886

Subcontracted Radiological - Certificate: ME384482 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGH0886-03	PGH0886-04	PGH0886-05
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			13/08/2025	13/08/2025	13/08/2025
Gross alpha	Bq/L		11.6	1.98	0.516
Gross beta	Bq/L		17.7	0.914	0.087
Lead-210	Bq/L		1.31	<0.35	<0.2

Certificate of Analysis PGH0886

Subcontracted Radiological - Potassium 40 - Certificate: ME384482 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGH0886-03	PGH0886-04	PGH0886-05
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			13/08/2025	13/08/2025	13/08/2025
Potassium-40	Bq/L		9.2	7.9	0.69

Certificate of Analysis PGH0886

Result Comments

Identifier	Description
[2]	PQL(s) has/have been raised as the sample(s) was/were foamy and therefore required dilution.
[3]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[4]	PQL(s) has/have been raised due to matrix interference.
[6]	Pale Brown Cloudy Solution
[7]	Pale Yellow Cloudy Solution

Certificate of Analysis PGH0886

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed. Blanks may yield EC readings >1µS/cm, this is likely due to adsorption of Carbon Dioxide while the blank sample is sat on the instrument autosampler prior to analysis. The values are generally insignificant (<5µS/cm) compared to most actual sample conductivities.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-021	Methylene Blue Active Substances - determined colorimetrically, based on APHA latest edition, Method 5540-C. Solid samples extracted with water.
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG-026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-091	BOD and/or cBOD - Analysed in accordance with APHA latest edition 5210 D.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
MICRO-001B	E. coli/Thermotolerant coliforms: Microbial Water Analysis - in accordance with MICRO-001 (AS4276.5-latest edition). Recommended maximums based on NHMRC Australian Drinking Water Guidelines. Please note that results for this test derived from counts outside of the range 10-80 are considered approximate as per AS4276.1.

Certificate of Analysis PGH0886

Method Summary

Method ID	Methodology Summary
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGH0886

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGH0886

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGH0886

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	MTM Groundwater - Quarterly
Date Issued	15/10/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	No	Duplicate Outliers Exist - See detailed list below
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGH0886

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Water	9	13/08/2025	15/08/2025	16/08/2025	Yes
sTRH Water	9	13/08/2025	15/08/2025	20/08/2025	Yes
Total Phosphorus Water	1-2, 6-8, 10	13/08/2025	18/08/2025	19/08/2025	Yes
Dissolved Metals Water	6-8, 10	13/08/2025	18/08/2025	20/08/2025	Yes
Dissolved Metals (LL) Water	3-5	13/08/2025	03/09/2025	05/09/2025	Yes
	6-8, 10	13/08/2025	18/08/2025	20/08/2025	Yes
Dissolved Metals (LL)-Hg Water	6-8, 10	13/08/2025	19/08/2025	20/08/2025	Yes
Colour-True Water	6-8, 10	13/08/2025	15/08/2025	15/08/2025	Yes
EC Water	6-10	13/08/2025	15/08/2025	15/08/2025	Yes
pH Water	1-2, 6-10	13/08/2025	15/08/2025	15/08/2025	No
pH (True Colour) Water	6-8, 10	13/08/2025	18/08/2025	19/08/2025	No
TDS Water	6-8, 10	13/08/2025	19/08/2025	19/08/2025	Yes
TSS Water	1-2	13/08/2025	19/08/2025	19/08/2025	Yes
	6-8, 10	13/08/2025	19/08/2025	20/08/2025	Yes
Turbidity Water	6-8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Turbidity (filtered) Water	6-8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Alkalinity Suite Water	6-8, 10	13/08/2025	15/08/2025	15/08/2025	Yes
Chloride Water	6-8, 10	13/08/2025	18/08/2025	19/08/2025	Yes
Dissolved Cations Water	6-8, 10	13/08/2025	18/08/2025	20/08/2025	Yes
Ion Balance Water	6-8, 10	13/08/2025	15/08/2025	22/08/2025	Yes
Sulfate Water	6-8, 10	13/08/2025	18/08/2025	19/08/2025	Yes
Fluoride Water	6-8, 10	13/08/2025	15/08/2025	15/08/2025	Yes
Ferrous Iron Water	6-8, 10	13/08/2025	19/08/2025	19/08/2025	Yes
Nitrogen - Ammonia Water	6-8, 10	13/08/2025	15/08/2025	15/08/2025	Yes
Nitrogen - Nitrate Water	6-7	13/08/2025	15/08/2025	15/08/2025	Yes
	8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Nitrogen - Nitrite Water	6-7	13/08/2025	15/08/2025	15/08/2025	Yes
	8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Nitrogen - NOx Water	6-7	13/08/2025	15/08/2025	15/08/2025	Yes
	8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Nitrogen - Total N Water	1-2, 6-8, 10	13/08/2025	19/08/2025	20/08/2025	Yes
Phosphate as P Water	6-7	13/08/2025	15/08/2025	15/08/2025	Yes
	8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
TKN as N calc Water	6-8, 10	13/08/2025	15/08/2025	22/08/2025	Yes
BOD Water	1-2	13/08/2025	01/09/2025	08/09/2025	Yes
MBAS Water	9	13/08/2025	15/08/2025	18/08/2025	Yes
E. coli & T.T.coli Water	1-2	13/08/2025	14/08/2025	14/08/2025	Yes
Radium 226 & 228 Water	3-5	13/08/2025	21/08/2025	15/10/2025	Yes

Data Quality Assessment Summary PGH0886

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Gross alpha & beta Water	3-5	13/08/2025	20/08/2025	03/09/2025	Yes
Lead 210 Water	3-5	13/08/2025	21/08/2025	15/10/2025	Yes
GROSS_ALPHA_BETA_SGS Water	3-5	13/08/2025	10/09/2025	15/10/2025	Yes

Outliers: Duplicates

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGH2826

Sample ID	Duplicate ID	Analyte	% Limits	RPD
PGH0886-08	DUP2	Iron	20.00	136

Outliers: Matrix Spike

INORG-060 | Inorganics - Nutrients (Water) | Batch BGH2407

Sample ID	Analyte	% Limits	% Recovery
BGH2407-MS1#	Phosphate as P	70 - 130	##[1]

Outliers: QC Frequency

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGI0200

Analysis	QC Type	Expected	Reported
BOD	Duplicate	1	0

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGH2556

Analysis	QC Type	Expected	Reported
VTRH&MBTEXN	Duplicate	2	0
	Matrix Spike	1	0

Quality Control PGH0886

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGH2556

Analyte	Units	PQL	Blank	LCS %
TRH C6-C9	µg/L	10	<10	100
TRH C6 C10	µg/L	10	10	105
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	[NA]
Benzene	µg/L	1.0	<1.0	99.5
Toluene	µg/L	1.0	<1.0	101
Ethylbenzene	µg/L	1.0	<1.0	98.8
meta+para Xylene	µg/L	2.0	<2.0	96.5
ortho-Xylene	µg/L	1.0	<1.0	98.5
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	[NA]
Surrogate Dibromofluoromethane	%		96.4	106
Surrogate Toluene-D8	%		102	112
Surrogate 4 Bromofluorobenzene	%		103	101

ORG-020 | Semi-volatile TRH (Water) | Batch BGH2625

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2625-DUP1# Samp QC RPD %	BGH2625-DUP2# Samp QC RPD %		
TRH C10-C14	µg/L	50	<50	<50 <50 [NA]	<50 <50 [NA]	82.8	82.6
TRH C15-C28	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	89.7	104
TRH C29-C36	µg/L	100	<100	<100 <100 [NA] [5]	<100 <100 [NA]	101	125
TRH >C10-C16	µg/L	50	<50	<50 <50 [NA]	<50 <50 [NA]	90.3	93.3
TRH >C16-C34 (F3)	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	90.5	107
TRH >C34-C40 (F4)	µg/L	100	<100	<100 <100 [NA] [5]	<100 <100 [NA]	87.9	111
Surrogate o-Terphenyl	%		95.3	92.5 / 79.7	86.1 / 80.0	78.5	90.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Water) | Batch BGH2832

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2832-DUP1# Samp QC RPD %	BGH2832-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	14.2 14.5 2.44	39.5 40.1 1.46	102	98.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGH2827

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2827-DUP1# Samp QC RPD %	PGH0886-08 Samp QC RPD %		
Silicon	mg/L	0.10	<0.10	5.04 5.03 0.268	12.4 12.2 1.86	101	117
Silica	mg/L	0.20	0.20	10.8 10.8 0.268	26.5 26.0 1.86	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0886

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGH2826

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2826-DUP1# Samp QC RPD %	PGH0886-08 Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.020 <0.020 [NA]	97.3	103
Arsenic	mg/L	0.0010	<0.0010	0.00207 0.00209 [NA]	<0.0020 <0.0020 [NA]	100	108
Barium	mg/L	0.0010	<0.0010	0.0684 0.0686 0.291	0.0709 0.0707 0.226	101	94.0
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.0010 <0.0010 [NA]	95.1	93.1
Boron	mg/L	0.020	<0.020	0.0489 0.0493 [NA]	11.2 11.2 0.672	91.1	82.9
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.00020 <0.00020 [NA]	105	102
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	99.5	105
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0549 0.0558 1.66	99.6	103
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	98.4	102
Iron	mg/L	0.010	<0.010	0.205 0.202 1.73	43.6 8.29 136	98.0	87.9
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	99.5	93.4
Lithium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	1.02 1.01 0.646	97.2	92.7
Manganese	mg/L	0.0010	<0.0010	0.0250 0.0253 1.22	11.7 12.0 2.09	98.1	100
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00236 0.00234 [NA]	98.9	101
Nickel	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0237 0.0238 0.590	98.9	102
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	105	111
Strontium	mg/L	0.0010	<0.0010	0.233 0.233 0.312	6.07 6.20 2.11	96.9	93.9
Titanium	mg/L	0.0010	<0.0010	0.00143 <0.0010 [NA] [5]	<0.0020 <0.0020 [NA]	99.1	104
Vanadium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	98.8	106
Zinc	mg/L	0.0010	<0.0010	0.00754 0.00696 7.99	0.0977 0.0968 0.885	102	104

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGH2957

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2957-DUP1# Samp QC RPD %	BGH2957-DUP2# Samp QC RPD %		
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	102	71.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGI0710

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGI0710-DUP1# Samp QC RPD %	BGI0710-DUP2# Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.00291 0.00293 [NA]	<0.0010 <0.0010 [NA]	98.7	101
Thorium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	92.2	89.5
Uranium	mg/L	0.0010	<0.0010	0.00122 0.00123 [NA]	<0.0010 <0.0010 [NA]	99.1	98.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGH2407

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2407-DUP1# Samp QC RPD %	BGH2407-DUP2# Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	6.56 7.53 [NA]	<5.0 <5.0 [NA]	111
Analyte	Units	PQL	Blank	LCS %		
Colour (True)	PCU	5.0	<5.0	[NA]		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0886

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGH2447

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2447-DUP1# Samp QC RPD %	BGH2447-DUP2# Samp QC RPD %	
pH	pH units		6.0	6.9 7.1 2.00	7.4 7.4 0.00	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGH2448

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0886-06 Samp QC RPD %	PGH0886-10 Samp QC RPD %	
pH	pH units		5.9	7.7 7.8 0.129	6.8 6.8 0.148	102
Electrical Conductivity	µS/cm	2.0	<2.0	34800 34800 0.0672	56100 55900 0.302	102

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGH2520

Analyte	Units	PQL	Blank	DUP1	LCS %
				PGH0886-06 Samp QC RPD %	
Turbidity (filtered)	NTU	0.10	<0.10	0.370 0.400 [NA]	99.5

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGH2524

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2524-DUP1# Samp QC RPD %	BGH2524-DUP2# Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	0.290 0.280 [NA]	0.280 0.260 [NA]	99.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGH2525

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0886-08 Samp QC RPD %	BGH2525-DUP2# Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	528 515 2.49	<0.10 <0.10 [NA]	99.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGH2901

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2901-DUP1# Samp QC RPD %	BGH2901-DUP2# Samp QC RPD %	
pH (True Colour)	pH units			7.1 7.1 0.283	7.8 7.8 0.00	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGH2926

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2926-DUP1# Samp QC RPD %	BGH2926-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	<5.0 <5.0 [NA]	746 766 2.65	104

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGH2927

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0886-08 Samp QC RPD %	BGH2927-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	272 273 0.367	11.0 <10 [NA] [5]	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0886

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGH2959

Analyte	Units	PQL	Blank	DUP1		LCS %
				BGH2959-DUP1#	Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	20.0 27.5 [NA] [5]		92.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2448

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %
				PGH0886-06	Samp QC RPD %	PGH0886-10	Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	956 955 0.146		218 222 2.09		[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]		<5.0 <5.0 [NA]		[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]		<5.0 <5.0 [NA]		[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	956 955 0.146		218 222 2.09		95.4

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2827

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGH2827-DUP1#	Samp QC RPD %	PGH0886-08	Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	57.1 57.1 0.00526		274 271 1.16		102	79.8
Magnesium	mg/L	0.50	<0.50	10.4 10.3 0.406		1570 1550 1.41		115	97.6
Potassium	mg/L	0.50	<0.50	7.55 7.54 0.204		248 248 0.161		107	99.0
Sodium	mg/L	0.50	<0.50	76.2 75.4 1.16		11300 11100 1.66		119	80.9
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	185 185 0.0975		7140 7040 1.38		[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2872

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				PGH0886-06	Samp QC RPD %	BGH2872-DUP2#	Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	12100 12000 0.776		219 222 1.52		98.6	91.0
Sulfate	mg/L	1.0	<1.0	3520 3490 0.789		57.6 58.7 1.90		93.3	107

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGH2454

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGH2454-DUP1#	Samp QC RPD %	BGH2454-DUP2#	Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	<1.0 <1.0 [NA] [3]		0.249 0.250 [NA]		97.4	99.6[3]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGH2937

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				PGH0886-06	Samp QC RPD %	BGH2937-DUP2#	Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	<0.050 0.0510 [NA] [5]		<0.050 <0.050 [NA]		119	117

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0886

INORG-057 | Inorganics - Nutrients (Water) | Batch BGH2407

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2407-DUP1# Samp QC RPD %	BGH2407-DUP2# Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	114	103
Nitrate as N	mg/L	0.0050	0.0050	0.349 0.355 1.78	2.15 2.15 0.00	101	103
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	94.5	97.0
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	0.351 0.357 1.78	2.15 2.15 0.00	101	103
Phosphate as P	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0917 0.0920 0.327	113	##[1]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGH2908

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2908-DUP1# Samp QC RPD %	PGH0886-01 Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	65.1 66.0 1.44	15.7 15.5 0.985	105	91.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-021 | Inorganics - Common Wastewater Parameters (Water) | Batch BGH2459

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGH2459-DUP1# Samp QC RPD %		
MBAS	mg/L	0.10	<0.10	<0.10 <0.10 [NA]	96.0	93.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGI0200

Analyte	Units	PQL	Blank	LCS %
BOD	mg/L	5.0	<5.0	91.7

MICRO-001B | Microbiological Suite (Water) | Batch BGH2489

Analyte	Units	PQL	Blank	LCS %
Thermotolerant Coliforms	cfu/100mL	1	<1	[NA]
E.coli	cfu/100mL	1	<1	[NA]

QC Comments

Identifier	Description
[1]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[3]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[5]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.



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Client Details

Client Process Minerals International Pty Ltd (PMI)
Contact [REDACTED]
Address 20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference MTM Annual Groundwater Analysis 2025
Number of Samples 10 Water
Date Samples Received 04/11/2025
Date Instructions Received 04/11/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Final Results Expected 06/01/2026
Date of Reissue 01/12/2025 - This report supercedes previous report, see amendment history for details

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Authorisation Details

Results Approved By Ben Carpenter, Metals Technician
Lien Tang, Assistant Operations Manager
Lucas Yij, Inorganics Team Leader
Michael Mowle, Development Chemist - Inorganics and Metals
Varsha Ho Wing, Inorganics and Metals Supervisor
Laboratory Manager Michael Kubiak

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Report Amendment History

Revision	Reason for Amendment
R-01	Radionuclide results added.

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Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PGK0156-01	Mb21mmn02b	Water	03/11/2025	04/11/2025
PGK0156-02	Mb21wrd01b	Water	03/11/2025	04/11/2025
PGK0156-03	Mb21wrd02b	Water	03/11/2025	04/11/2025
PGK0156-04	Mb21wrd03b	Water	03/11/2025	04/11/2025
PGK0156-05	Mb21wrd04b	Water	03/11/2025	04/11/2025
PGK0156-06	Mb19mmc02A	Water	03/11/2025	04/11/2025
PGK0156-07	Mb19mmc03	Water	03/11/2025	04/11/2025
PGK0156-08	TN01	Water	03/11/2025	04/11/2025
PGK0156-09	TN02	Water	03/11/2025	04/11/2025
PGK0156-10	TN03	Water	03/11/2025	04/11/2025

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Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGK0156-01	PGK0156-02	PGK0156-03	PGK0156-04	PGK0156-05
Your Reference			Mb21mmn02b	Mb21wr01b	Mb21wr02b	Mb21wr03b	Mb21wr04b
Date Sampled			03/11/2025	03/11/2025	03/11/2025	03/11/2025	03/11/2025
Phosphorus	mg/L	0.050	1.0	0.057	<0.50 [3]	<0.50 [3]	<0.10 [3]

Envirolab ID	Units	PQL	PGK0156-06	PGK0156-07
Your Reference			Mb19mmc02A	Mb19mmc03
Date Sampled			03/11/2025	03/11/2025
Phosphorus	mg/L	0.050	<0.10 [3]	0.056

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Dissolved Metals (Water)

Envirolab ID	Units	PQL	PGK0156-01	PGK0156-02	PGK0156-03	PGK0156-04	PGK0156-05
Your Reference			Mb21mmn02b	Mb21wr01b	Mb21wr02b	Mb21wr03b	Mb21wr04b
Date Sampled			03/11/2025	03/11/2025	03/11/2025	03/11/2025	03/11/2025
Silicon	mg/L	0.10	41	23	12 [3]	7.0 [3]	20 [3]
Silica*	mg/L	0.20	87	50	26 [3]	15 [3]	43 [3]

Envirolab ID	Units	PQL	PGK0156-06	PGK0156-07
Your Reference			Mb19mmc02A	Mb19mmc03
Date Sampled			03/11/2025	03/11/2025
Silicon	mg/L	0.10	21 [3]	28
Silica*	mg/L	0.20	45 [3]	60

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0156-01 Mb21mmn02b 03/11/2025	PGK0156-02 Mb21wr01b 03/11/2025	PGK0156-03 Mb21wr02b 03/11/2025	PGK0156-04 Mb21wr03b 03/11/2025	PGK0156-05 Mb21wr04b 03/11/2025
Aluminium	mg/L	0.010	0.17	<0.010	<0.020	<0.020	0.023
Arsenic	mg/L	0.0010	<0.0010	0.0029	<0.0020	<0.0020	0.0041
Boron	mg/L	0.020	3.3	1.9	9.8	8.4	8.1
Barium	mg/L	0.0010	0.015	0.066	0.063	0.055	0.074
Beryllium	mg/L	0.00050	0.0038	<0.00050	<0.0010	<0.0010	<0.00050
Cadmium	mg/L	0.00010	0.00034	<0.00010	<0.00020	<0.00020	0.00010
Cobalt	mg/L	0.0010	0.014	0.021	0.15	0.016	0.031
Chromium	mg/L	0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010
Copper	mg/L	0.0010	<0.0010	0.0045	<0.0020	<0.0020	<0.0010
Iron	mg/L	0.010	810	0.021	10	0.031	0.019
Mercury	mg/L	0.000050	0.000061 [7]	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.0010	1.9	2.0	1.1	1.4	1.2
Manganese	mg/L	0.0010	6.3	0.25	11	3.8	3.5
Molybdenum	mg/L	0.0010	<0.0010	0.0053	0.0090	0.0045	0.0066
Nickel	mg/L	0.0010	0.076	0.013	0.067	0.023	0.094
Lead	mg/L	0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010
Rubidium*	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	[NA]
Selenium	mg/L	0.0010	<0.0010	0.0056	<0.0020	<0.0020	<0.0010
Strontium	mg/L	0.0010	0.22	0.90	6.1	2.2	1.1
Thorium	mg/L	0.00050	[NA]	[NA]	[NA]	[NA]	[NA]
Titanium	mg/L	0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010
Uranium	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	[NA]
Vanadium	mg/L	0.0010	<0.0010	0.0079	<0.0020	<0.0020	0.0012
Zinc	mg/L	0.0010	31	0.088	0.0091	0.0028	0.0024

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0156-06 Mb19mmc02A 03/11/2025	PGK0156-07 Mb19mmc03 03/11/2025	PGK0156-08 TN01 03/11/2025	PGK0156-09 TN02 03/11/2025	PGK0156-10 TN03 03/11/2025
Aluminium	mg/L	0.010	<0.010	<0.010	[NA]	[NA]	[NA]
Arsenic	mg/L	0.0010	0.019	0.0029	[NA]	[NA]	[NA]
Boron	mg/L	0.020	6.3	4.0	[NA]	[NA]	[NA]
Barium	mg/L	0.0010	0.048	0.14	[NA]	[NA]	[NA]
Beryllium	mg/L	0.00050	<0.00050	<0.00050	[NA]	[NA]	[NA]
Cadmium	mg/L	0.00010	<0.00010	0.00010	[NA]	[NA]	[NA]
Cobalt	mg/L	0.0010	0.026	0.052	[NA]	[NA]	[NA]
Chromium	mg/L	0.0010	<0.0010	0.0011	[NA]	[NA]	[NA]
Copper	mg/L	0.0010	0.0012	0.013	[NA]	[NA]	[NA]
Iron	mg/L	0.010	0.059	0.018	[NA]	[NA]	[NA]
Mercury	mg/L	0.000050	<0.000050	<0.000050	[NA]	[NA]	[NA]
Lithium	mg/L	0.0010	2.4	0.76	[NA]	[NA]	[NA]
Manganese	mg/L	0.0010	1.0	1.7	[NA]	[NA]	[NA]
Molybdenum	mg/L	0.0010	0.0086	0.0018	[NA]	[NA]	[NA]
Nickel	mg/L	0.0010	0.075	0.085	[NA]	[NA]	[NA]
Lead	mg/L	0.0010	<0.0010	<0.0010	[NA]	[NA]	[NA]
Rubidium*	mg/L	0.0010	[NA]	[NA]	1.2	1.2	0.092
Selenium	mg/L	0.0010	<0.0010	0.0016	[NA]	[NA]	[NA]

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Dissolved Low Level Metals (Water)

Envirolab ID	Units	PQL	PGK0156-06	PGK0156-07	PGK0156-08	PGK0156-09	PGK0156-10
Your Reference			Mb19mmc02A	Mb19mmc03	TN01	TN02	TN03
Date Sampled			03/11/2025	03/11/2025	03/11/2025	03/11/2025	03/11/2025
Strontium	mg/L	0.0010	0.96	2.2	[NA]	[NA]	[NA]
Thorium	mg/L	0.00050	[NA]	[NA]	<0.00050	<0.00050	<0.00050
Titanium	mg/L	0.0010	<0.0010	<0.0010	[NA]	[NA]	[NA]
Uranium	mg/L	0.0010	[NA]	[NA]	0.059	0.048	0.0065
Vanadium	mg/L	0.0010	0.0020	0.0043	[NA]	[NA]	[NA]
Zinc	mg/L	0.0010	0.029	0.016	[NA]	[NA]	[NA]

Certificate of Analysis PGK0156

Inorganics - Physical Parameters (Water)

Envirolab ID	Units	PQL	PGK0156-01	PGK0156-02	PGK0156-03	PGK0156-04	PGK0156-05
Your Reference			Mb21mmn02b	Mb21wrd01b	Mb21wrd02b	Mb21wrd03b	Mb21wrd04b
Date Sampled			03/11/2025	03/11/2025	03/11/2025	03/11/2025	03/11/2025
pH	pH units		5.3	7.7	6.8	7.5	7.5
pH (True Colour)	pH units		5.0	7.7	6.8	7.4	7.4
Electrical Conductivity	µS/cm	2.0	18000	5300	53000	49000	33000
Total Dissolved Solids	mg/L	5.0	14000	3100	41000	32000	23000
Total Suspended Solids	mg/L	5.0	950	50	82	7.0	9.0
Turbidity	NTU	0.10	1100 [6]	23	350 [6]	2.0	2.1
Turbidity (filtered)*	NTU	0.10	200 [8]	0.36	120 [8]	0.39	0.40
Colour (True)	PCU	5.0	210	6.6	91	<5.0	<5.0

Envirolab ID	Units	PQL	PGK0156-06	PGK0156-07
Your Reference			Mb19mmc02A	Mb19mmc03
Date Sampled			03/11/2025	03/11/2025
pH	pH units		7.7	7.4
pH (True Colour)	pH units		7.6	7.2
Electrical Conductivity	µS/cm	2.0	33000	21000
Total Dissolved Solids	mg/L	5.0	23000	14000
Total Suspended Solids	mg/L	5.0	180	100
Turbidity	NTU	0.10	73	97
Turbidity (filtered)*	NTU	0.10	0.84	0.42
Colour (True)	PCU	5.0	<5.0	15

Certificate of Analysis PGK0156

Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0156-01 Mb21mmn02b 03/11/2025	PGK0156-02 Mb21wrd01b 03/11/2025	PGK0156-03 Mb21wrd02b 03/11/2025	PGK0156-04 Mb21wrd03b 03/11/2025	PGK0156-05 Mb21wrd04b 03/11/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	29	580	200	150	920
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	29	580	200	150	920
Chloride	mg/L	1.0	5600	1100	23000	20000	12000
Sulfate	mg/L	1.0	4500	460	3900	5300	3600
Calcium	mg/L	0.50	160	86	260 [3]	120 [3]	86 [3]
Magnesium	mg/L	0.50	580	190	1600 [3]	1900 [3]	1000 [3]
Potassium	mg/L	0.50	45	21	220 [3]	130 [3]	120 [3]
Sodium	mg/L	0.50	3000	790	12000 [3]	11000 [3]	7300 [3]
Hardness (calc) equivalent CaCO3	mg/L	3.0	2800	980	7200 [3]	8100 [3]	4500 [3]
Ionic Balance	%		-14	2.4	-2.4	-3.5	-4.5

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0156-06 Mb19mmc02A 03/11/2025	PGK0156-07 Mb19mmc03 03/11/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	940	930
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	940	930
Chloride	mg/L	1.0	12000	7200
Sulfate	mg/L	1.0	3900	2200
Calcium	mg/L	0.50	58 [3]	250
Magnesium	mg/L	0.50	1100 [3]	920
Potassium	mg/L	0.50	100 [3]	54
Sodium	mg/L	0.50	7400 [3]	3700
Hardness (calc) equivalent CaCO3	mg/L	3.0	4700 [3]	4400
Ionic Balance	%		-2.2	-2.6

Certificate of Analysis PGK0156

Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGK0156-01	PGK0156-02	PGK0156-03	PGK0156-04	PGK0156-05
Your Reference			Mb21mmn02b	Mb21wr01b	Mb21wr02b	Mb21wr03b	Mb21wr04b
Date Sampled			03/11/2025	03/11/2025	03/11/2025	03/11/2025	03/11/2025

Fluoride	mg/L	0.10	0.45	0.44	<0.10	<0.10	0.11
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Envirolab ID	Units	PQL	PGK0156-06	PGK0156-07
Your Reference			Mb19mmc02A	Mb19mmc03
Date Sampled			03/11/2025	03/11/2025

Fluoride	mg/L	0.10	0.72	0.44
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Certificate of Analysis PGK0156

Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGK0156-01	PGK0156-02	PGK0156-03	PGK0156-04	PGK0156-05
Your Reference			Mb21mmn02b	Mb21wrd01b	Mb21wrd02b	Mb21wrd03b	Mb21wrd04b
Date Sampled			03/11/2025	03/11/2025	03/11/2025	03/11/2025	03/11/2025

Ferrous Iron	mg/L	0.050	620	<0.050	7.9	<0.050	<0.050
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Envirolab ID	Units	PQL	PGK0156-06	PGK0156-07
Your Reference			Mb19mmc02A	Mb19mmc03
Date Sampled			03/11/2025	03/11/2025

Ferrous Iron	mg/L	0.050	0.076	<0.050
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Certificate of Analysis PGK0156

Inorganics - Nutrients (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0156-01 Mb21mmn02b 03/11/2025	PGK0156-02 Mb21wrd01b 03/11/2025	PGK0156-03 Mb21wrd02b 03/11/2025	PGK0156-04 Mb21wrd03b 03/11/2025	PGK0156-05 Mb21wrd04b 03/11/2025
Ammonia as N	mg/L	0.0050	0.060	<0.0050	0.20	0.059	0.059
Nitrate as N	mg/L	0.0050	<0.050 [4]	10	<0.050 [4]	<0.0050	<0.0050
Nitrate as NO3 by calculation	mg/L	0.020	<0.20 [4]	45	<0.20 [4]	<0.020	<0.020
Nitrite as N	mg/L	0.0050	<0.050 [4]	0.22	<0.050 [4]	<0.0050	<0.0050
Nitrite as NO2 by calculation	mg/L	0.020	<0.20 [4]	0.72	<0.20 [4]	<0.020	<0.020
NOx as N	mg/L	0.0050	<0.050 [4]	10	<0.050 [4]	<0.0050	<0.0050
TKN as N by calculation	mg/L	0.10	0.50	0.94	0.47	0.19	0.30
Total Nitrogen	mg/L	0.10	0.52	11	0.47	0.19	0.30
Phosphate as P	mg/L	0.0050	<0.050 [4]	0.035	<0.0050	0.030	0.071

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0156-06 Mb19mmc02A 03/11/2025	PGK0156-07 Mb19mmc03 03/11/2025
Ammonia as N	mg/L	0.0050	0.13	0.064
Nitrate as N	mg/L	0.0050	<0.0050	<0.0050
Nitrate as NO3 by calculation	mg/L	0.020	<0.020	<0.020
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050
Nitrite as NO2 by calculation	mg/L	0.020	<0.020	<0.020
NOx as N	mg/L	0.0050	<0.0050	<0.0050
TKN as N by calculation	mg/L	0.10	0.40	0.43
Total Nitrogen	mg/L	0.10	0.40	0.43
Phosphate as P	mg/L	0.0050	0.091	0.040

Certificate of Analysis PGK0156

Subcontracted Radiological - Radium 226 and 228 - Certificate: ME386368 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGK0156-08	PGK0156-09	PGK0156-10
Your Reference			TN01	TN02	TN03
Date Sampled			03/11/2025	03/11/2025	03/11/2025
Radium 226	Bq/L		1.77	4.22	<0.033
Radium 228	Bq/L		0.736	5.5	<0.09

Certificate of Analysis PGK0156

Subcontracted Radiological - Certificate: ME386368 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGK0156-08	PGK0156-09	PGK0156-10
Your Reference			TN01	TN02	TN03
Date Sampled			03/11/2025	03/11/2025	03/11/2025
Gross alpha	Bq/L		2.8	2.63	0.341
Gross beta	Bq/L		1.56	1.96	<0.074
Lead-210	Bq/L		0.105	0.174	<0.18

Certificate of Analysis PGK0156

Subcontracted Radiological - Potassium 40 - Certificate: ME386368 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGK0156-08	PGK0156-09	PGK0156-10
Your Reference			TN01	TN02	TN03
Date Sampled			03/11/2025	03/11/2025	03/11/2025
Potassium-40	Bq/L		8	7.8	0.79

Certificate of Analysis PGK0156

Result Comments

Identifier	Description
[3]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[4]	PQL(s) has/have been raised due to matrix interference.
[6]	orange cloudy solution
[7]	Result confirmed through repeat analysis.
[8]	yellow cloudy solution

Certificate of Analysis PGK0156

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed. Blanks may yield EC readings >1µS/cm, this is likely due to adsorption of Carbon Dioxide while the blank sample is sat on the instrument autosampler prior to analysis. The values are generally insignificant (<5µS/cm) compared to most actual sample conductivities.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG-026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGK0156

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGK0156

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates can be downloaded from the [Envirolab Resources website](#) or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGK0156

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	MTM Annual Groundwater Analysis 2025
Date Issued	01/12/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGK0156

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Total Phosphorus Water	1-2, 7	03/11/2025	06/11/2025	10/11/2025	Yes
	3-6	03/11/2025	06/11/2025	11/11/2025	Yes
Dissolved Metals Water	1-2, 7	03/11/2025	06/11/2025	07/11/2025	Yes
	3-6	03/11/2025	06/11/2025	10/11/2025	Yes
Dissolved Metals (LL) Water	1-7	03/11/2025	06/11/2025	06/11/2025	Yes
	8-10	03/11/2025	11/11/2025	13/11/2025	Yes
Dissolved Metals (LL)-Hg Water	1-7	03/11/2025	06/11/2025	07/11/2025	Yes
Colour-True Water	1-7	03/11/2025	05/11/2025	05/11/2025	Yes
EC Water	1-7	03/11/2025	05/11/2025	05/11/2025	Yes
pH Water	1-7	03/11/2025	05/11/2025	05/11/2025	No
pH (True Colour) Water	1-7	03/11/2025	05/11/2025	11/11/2025	Yes
TDS Water	1-7	03/11/2025	10/11/2025	10/11/2025	Yes
TSS Water	1-7	03/11/2025	10/11/2025	10/11/2025	Yes
Turbidity Water	1-7	03/11/2025	10/11/2025	10/11/2025	No
Turbidity (filtered) Water	1-7	03/11/2025	07/11/2025	10/11/2025	No
Alkalinity Suite Water	1-7	03/11/2025	05/11/2025	05/11/2025	Yes
Chloride Water	1-4	03/11/2025	06/11/2025	07/11/2025	Yes
	5-7	03/11/2025	06/11/2025	08/11/2025	Yes
Dissolved Cations Water	1-2, 7	03/11/2025	06/11/2025	07/11/2025	Yes
	3-6	03/11/2025	06/11/2025	10/11/2025	Yes
Ion Balance Water	1-7	03/11/2025	07/11/2025	11/11/2025	Yes
Sulfate Water	1-4	03/11/2025	06/11/2025	07/11/2025	Yes
	5-7	03/11/2025	06/11/2025	08/11/2025	Yes
Fluoride Water	1-7	03/11/2025	06/11/2025	06/11/2025	Yes
Ferrous Iron Water	1-7	03/11/2025	07/11/2025	07/11/2025	Yes
Nitrogen - Ammonia Water	2-7	03/11/2025	05/11/2025	05/11/2025	Yes
	1	03/11/2025	05/11/2025	06/11/2025	Yes
Nitrogen - Nitrate Water	2, 4-7	03/11/2025	05/11/2025	05/11/2025	Yes
	1, 3	03/11/2025	05/11/2025	06/11/2025	Yes
Nitrogen - Nitrite Water	2, 4-7	03/11/2025	05/11/2025	05/11/2025	Yes
	1, 3	03/11/2025	05/11/2025	06/11/2025	Yes
Nitrogen - NOx Water	2, 4-7	03/11/2025	05/11/2025	05/11/2025	Yes
	1, 3	03/11/2025	05/11/2025	06/11/2025	Yes
Nitrogen - Total N Water	1, 3-7	03/11/2025	06/11/2025	07/11/2025	Yes
	2	03/11/2025	06/11/2025	11/11/2025	Yes
Phosphate as P Water	2-7	03/11/2025	05/11/2025	05/11/2025	Yes
	1	03/11/2025	05/11/2025	06/11/2025	Yes
TKN as N calc Water	1-7	03/11/2025	06/11/2025	11/11/2025	Yes
Radium 226 & 228 Water	8-10	03/11/2025	14/11/2025	01/12/2025	Yes
Gross alpha & beta Water	8-10	03/11/2025	10/11/2025	21/11/2025	Yes

Data Quality Assessment Summary PGK0156

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Lead 210 Water	8-10	03/11/2025	14/11/2025	01/12/2025	Yes
GROSS_ALPHA_BETA_SGS Water	8-10	03/11/2025	18/11/2025	21/11/2025	Yes

Outliers: Matrix Spike

INORG-055 | Inorganics - Nutrients (Water) | Batch BGK0635

Sample ID	Analyte	% Limits	% Recovery
PGK0156-02	Nitrate as N	70 - 130	##[1]
PGK0156-02	Nitrite as N	70 - 130	##[2]
PGK0156-02	NOx as N	70 - 130	##[1]

METALS-020 | Dissolved Metals (Water) | Batch BGK0707

Sample ID	Analyte	% Limits	% Recovery
BGK0707-MS1#	Silicon	70 - 130	139[2]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK0705

Sample ID	Analyte	% Limits	% Recovery
BGK0705-MS1#	Boron	70 - 130	##[1]
BGK0705-MS1#	Copper	70 - 130	##[1]

Quality Control PGK0156

METALS-020 | Acid Extractable Metals (Water) | Batch BGK0704

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0704-DUP1# Samp QC RPD %	PGK0156-05 Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	0.259 0.258 0.507	<0.100 0.0530 [NA] [5]	95.6	89.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGK0707

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0707-DUP1# Samp QC RPD %	BGK0707-DUP2# Samp QC RPD %		
Silicon	mg/L	0.1		1.97 1.95 0.561	2.03 2.03 0.0197	101	139[2]
Silica	mg/L	0.20	<0.20	4.21 4.18 0.561	4.34 4.34 0.0197	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK0705

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0705-DUP1# Samp QC RPD %	BGK0705-DUP2# Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	93.3	107
Arsenic	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	98.2	99.0
Barium	mg/L	0.0010	<0.0010	0.0463 0.0479 3.53	0.0478 0.0476 0.398	95.4	98.4
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	93.9	97.9
Boron	mg/L	0.020	<0.020	0.555 0.553 0.263	0.593 0.579 2.27	80.0	##[1]
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.00010 <0.00010 [NA]	101	98.4
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	98.7	96.8
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	99.0	95.0
Copper	mg/L	0.0010	<0.0010	0.381 0.368 3.65	0.119 0.121 1.16	99.8	##[1]
Iron	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	93.2	101
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	98.3	96.4
Lithium	mg/L	0.0010	<0.0010	0.00251 0.00256 [NA]	0.00254 0.00253 [NA]	95.9	98.3
Manganese	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	96.2	94.8
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	91.8	99.7
Nickel	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	99.5	94.0
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	103	101
Strontium	mg/L	0.0010	<0.0010	0.149 0.147 1.76	0.151 0.154 1.98	96.0	80.9
Titanium	mg/L	0.0010	<0.0010	0.00158 <0.0010 [NA] [5]	<0.0010 <0.0010 [NA]	90.8	94.7
Vanadium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	97.6	97.9
Zinc	mg/L	0.0010	<0.0010	0.0195 0.0192 1.74	0.00640 0.00651 1.67	106	84.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGK0713

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0713-DUP1# Samp QC RPD %	PGK0156-02 Samp QC RPD %		
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	94.0	90.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK1611

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK1611-DUP1# Samp QC RPD %	BGK1611-DUP2# Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.00497 0.00501 [NA]	0.0380 0.0384 1.04	94.6	94.2
Thorium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	96.5	89.1
Uranium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0140 0.0140 0.129	86.6	95.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0156

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGK0567

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGK0156-01 Samp QC RPD %	BGK0567-DUP2# Samp QC RPD %	
pH	pH units		5.9	5.3 5.3 0.375	7.9 7.9 0.253	102
Electrical Conductivity	µS/cm	2.0	<2.0	18300 18400 0.794	1020 1020 0.0294	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGK0635

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGK0156-01 Samp QC RPD %	PGK0156-07 Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	214 215 0.612	15.0 15.3 [NA]	117
Colour (True)	PCU	5.0	<5.0			[NA]

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGK0640

Analyte	Units	PQL	Blank	DUP1	LCS %
				BGK0640-DUP1# Samp QC RPD %	
pH (True Colour)	pH units		5.7	7.9 7.9 0.00	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGK1056

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGK0156-01 Samp QC RPD %	BGK1056-DUP2# Samp QC RPD %	
Turbidity (filtered)	NTU	0.10	<0.10	202 198 2.00	0.460 0.480 [NA]	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGK1189

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGK0156-01 Samp QC RPD %	BGK1189-DUP2# Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	1100 1100 0.818	0.320 0.330 [NA]	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGK1204

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGK0156-01 Samp QC RPD %	BGK1204-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	13600 13700 0.732	27900 32700 15.8	94.9

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGK1205

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGK0156-01 Samp QC RPD %	BGK1205-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	952 914 4.07	5.00 5.00 [NA]	90.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0156

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK0567

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGK0156-01 Samp QC RPD %	BGK0567-DUP2# Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	28.7 29.3 2.07	325 327 0.522	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	28.7 29.3 2.07	325 327 0.522	106

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK0707

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0707-DUP1# Samp QC RPD %	BGK0707-DUP2# Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	18.5 18.4 0.738	19.1 19.0 0.331	94.6	100
Magnesium	mg/L	0.50	<0.50	3.54 3.53 0.450	3.61 3.60 0.269	95.8	98.1
Potassium	mg/L	0.50	<0.50	3.03 3.06 0.986	3.12 3.08 1.18	97.4	97.1
Sodium	mg/L	0.50	<0.50	86.3 87.1 0.980	89.0 88.9 0.101	90.2	95.7
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	60.8 60.4 0.669	62.5 62.3 0.316	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK0815

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0815-DUP1# Samp QC RPD %	BGK0815-DUP2# Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	181 181 0.127	180 179 0.142	93.5	88.2
Sulfate	mg/L	1.0	<1.0	35.5 35.6 0.191	35.4 35.4 0.0625	104	88.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGK0731

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0731-DUP1# Samp QC RPD %	PGK0156-02 Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	0.324 0.321 [NA]	0.442 0.380 [NA]	90.7	96.6

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGK1008

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGK0156-01 Samp QC RPD %	BGK1008-DUP2# Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	620 634 2.37	<0.050 <0.050 [NA]	106	117

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0156

INORG-057 | Inorganics - Nutrients (Water) | Batch BGK0635

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGK0156-01 Samp QC RPD %	PGK0156-07 Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	0.0602 0.0576 [NA]	0.0639 0.0649 1.50	101	93.4
Nitrate as N	mg/L	0.0050	0.0050	0.050 0.050 [NA] [4]	0.0050 0.0050 [NA]	112	##[1]
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.050 <0.050 [NA] [4]	<0.0050 <0.0050 [NA]	[NA]	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	<0.050 <0.050 [NA] [4]	<0.0050 <0.0050 [NA]	112	##[1]
Phosphate as P	mg/L	0.0050	<0.0050	<0.050 <0.050 [NA] [4]	0.0396 0.0388 2.13	111	110

Analyte	Units	PQL	Blank	LCS %	Spike %
Nitrite as N	mg/L	0.0050	<0.0050	102	##[2]
Nitrite as NO2 by calculation	mg/L	0.020	<0.020	[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	[NA]	[NA]
Phosphate as P	mg/L	0.0050	<0.0050	[NA]	[NA]

INORG-127 | Inorganics - Nutrients (Water) | Batch BGK0726

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0726-DUP1# Samp QC RPD %	BGK0726-DUP2# Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	1.72 1.44 17.7	3.08 2.99 3.02	98.7	71.9

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[4]	PQL(s) has/have been raised due to matrix interference.
[5]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.



Certificate of Analysis PGK0298

Client Details

Client Process Minerals International Pty Ltd (PMI)
Contact [REDACTED]
Address 20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference MTM Annual Groundwater Analysis 2025
Number of Samples 11 Water
Date Samples Received 05/11/2025
Date Instructions Received 05/11/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

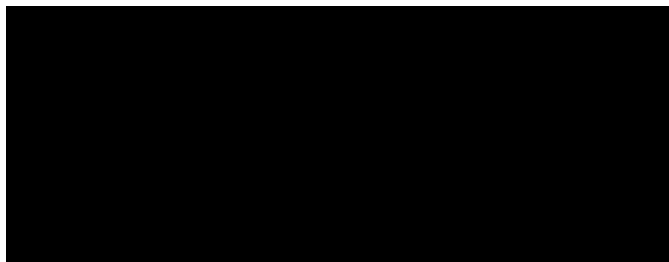
Date Final Results Expected 09/01/2026
Date of Reissue 05/12/2025 - This report supercedes previous report, see amendment history for details

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Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By



Laboratory Manager

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Report Amendment History

Revision	Reason for Amendment
R-01	Subcon results entered.

Certificate of Analysis PGK0298

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PGK0298-01	MB01	Water	04/11/2025	05/11/2025
PGK0298-02	MB05	Water	04/11/2025	05/11/2025
PGK0298-03	PB03	Water	04/11/2025	05/11/2025
PGK0298-04	PB05	Water	04/11/2025	05/11/2025
PGK0298-05	PB06	Water	04/11/2025	05/11/2025
PGK0298-06	PB09PBGCP02	Water	04/11/2025	05/11/2025
PGK0298-07	PB10	Water	04/11/2025	05/11/2025
PGK0298-08	PB11	Water	04/11/2025	05/11/2025
PGK0298-09	PB12	Water	04/11/2025	05/11/2025
PGK0298-10	MTM-WWTP-Stage2	Water	04/11/2025	05/11/2025
PGK0298-11	MTM-WWTP-Stage3	Water	04/11/2025	05/11/2025

Sample Comments

PB09PBGCP02 Labelled 'PB09'

Certificate of Analysis PGK0298

Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
Phosphorus	mg/L	0.050	<0.25 [4]	<0.25 [4]	<0.25 [4]	<0.25 [4]	<0.25 [4]

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09	PGK0298-10
Your Reference			PB09PBGCP02	PB10	PB11	PB12	MTM-WWTP-Stage2
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
Phosphorus	mg/L	0.050	<0.25 [4]	<0.25 [4]	<0.25 [4]	<0.050	6.8

Envirolab ID	Units	PQL	PGK0298-11
Your Reference			MTM-WWTP-Stage3
Date Sampled			04/11/2025
Phosphorus	mg/L	0.050	8.5

Certificate of Analysis PGK0298

Dissolved Metals (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025

Silicon	mg/L	0.10	24 [4]	16 [4]	29 [4]	28 [4]	31 [4]
Silica*	mg/L	0.20	51 [4]	34 [4]	60 [4]	60 [4]	67 [4]

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09
Your Reference			PB09PBGCP02	PB10	PB11	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025

Silicon	mg/L	0.10	8.5 [4]	9.4 [4]	13 [4]	19
Silica*	mg/L	0.20	18 [4]	20 [4]	28 [4]	41

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-01 MB01 04/11/2025	PGK0298-02 MB05 04/11/2025	PGK0298-03 PB03 04/11/2025	PGK0298-04 PB05 04/11/2025	PGK0298-05 PB06 04/11/2025
Aluminium	mg/L	0.010	21	0.024	25	25	38
Arsenic	mg/L	0.0010	0.020	<0.0020 [5]	0.032	0.0041	0.0043
Boron	mg/L	0.020	11	7.0	10	10	9.6
Barium	mg/L	0.0010	0.023	0.16	0.022	0.025	0.022
Beryllium	mg/L	0.00050	0.023	<0.0010 [5]	0.015	0.015	0.0081
Cadmium	mg/L	0.00010	0.00028	0.00026	<0.00020 [5]	<0.00020 [5]	0.00026
Cobalt	mg/L	0.0010	0.11	0.017	0.047	0.047	0.046
Chromium	mg/L	0.0010	0.0092	0.0036	0.0043	0.0035	0.0036
Copper	mg/L	0.0010	0.021	0.0056	0.053	0.052	0.0090
Iron	mg/L	0.010	7.5	<0.020 [5]	15	16	0.59
Mercury	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.0010	1.2	0.60	0.84	0.84	0.48
Manganese	mg/L	0.0010	1.0	0.34	1.0	1.0	0.48
Molybdenum	mg/L	0.0010	<0.0020 [5]	0.011	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]
Nickel	mg/L	0.0010	0.55	0.081	0.19	0.19	0.14
Lead	mg/L	0.0010	1.4	<0.0020 [5]	0.066	0.061	0.027
Rubidium*	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	0.16
Selenium	mg/L	0.0010	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]
Strontium	mg/L	0.0010	4.0	3.8	3.5	3.6	3.7
Thorium	mg/L	0.00050	[NA]	[NA]	[NA]	[NA]	<0.0010 [4]
Titanium	mg/L	0.0010	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]	0.0021	<0.0020 [5]
Uranium	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	0.12
Vanadium	mg/L	0.0010	0.0063	<0.0020 [5]	0.0028	<0.0020 [5]	<0.0020 [5]
Zinc	mg/L	0.0010	0.073	0.11	0.058	0.059	0.066

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-06 PB09PBGCP02 04/11/2025	PGK0298-07 PB10 04/11/2025	PGK0298-08 PB11 04/11/2025	PGK0298-09 PB12 04/11/2025
Aluminium	mg/L	0.010	<0.020 [4]	<0.020 [4]	<0.020 [4]	<0.010
Arsenic	mg/L	0.0010	0.12	0.15	0.27	0.0035
Boron	mg/L	0.020	6.3	6.4	6.7	1.5
Barium	mg/L	0.0010	0.075	0.076	0.072	0.023
Beryllium	mg/L	0.00050	<0.0010 [4]	<0.0010 [4]	0.0012	<0.00050
Cadmium	mg/L	0.00010	<0.00020 [4]	<0.00020 [4]	0.00076	<0.00010
Cobalt	mg/L	0.0010	0.012	0.022	0.055	<0.0010
Chromium	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Copper	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Iron	mg/L	0.010	7.0	6.6	5.8	0.34
Mercury	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.0010	7.0	6.7	5.4	1.1
Manganese	mg/L	0.0010	18	17	14	0.044
Molybdenum	mg/L	0.0010	0.050	0.046	0.034	0.0032
Nickel	mg/L	0.0010	0.14	0.32	0.80	0.0011
Lead	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Rubidium*	mg/L	0.0010	[NA]	1.6	[NA]	0.094
Selenium	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010

Certificate of Analysis PGK0298

Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-06 PB09PBGCP02 04/11/2025	PGK0298-07 PB10 04/11/2025	PGK0298-08 PB11 04/11/2025	PGK0298-09 PB12 04/11/2025
Strontium	mg/L	0.0010	8.2	8.2	7.6	0.61
Thorium	mg/L	0.00050	[NA]	<0.0010 [4]	[NA]	<0.00050
Titanium	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Uranium	mg/L	0.0010	[NA]	0.080	[NA]	0.0063
Vanadium	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Zinc	mg/L	0.0010	0.0063	0.026	0.032	<0.0010

Certificate of Analysis PGK0298

Inorganics - Physical Parameters (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
pH	pH units		3.9	6.8	4.4	4.2	3.5
pH (True Colour)	pH units		3.9	6.9	4.4	4.2	3.5
Electrical Conductivity	µS/cm	2.0	66000	50000	57000	57000	53000
Total Dissolved Solids	mg/L	5.0	43000	28000	33000	34000	33000
Total Suspended Solids	mg/L	5.0	7.0	24	6.0	11	<5.0
Turbidity	NTU	0.10	1.8	4.2	3.9	11	0.65
Turbidity (filtered)*	NTU	0.10	0.70	0.46	0.32	0.41	0.34
Colour (True)	PCU	5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09	PGK0298-10
Your Reference			PB09PBGCP02	PB10	PB11	PB12	MTM-WWTP-Station 2
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
pH	pH units		7.2	7.1	7.3	7.8	7.6
pH (True Colour)	pH units		7.2	7.2	7.4	7.9	[NA]
Electrical Conductivity	µS/cm	2.0	59000	60000	58000	12000	[NA]
Total Dissolved Solids	mg/L	5.0	36000	41000	40000	7200	[NA]
Total Suspended Solids	mg/L	5.0	22	22	24	<5.0	5.0
Turbidity	NTU	0.10	88	100 [8]	91	1.7	[NA]
Turbidity (filtered)*	NTU	0.10	21	28	0.89	0.63	[NA]
Colour (True)	PCU	5.0	74	110	<5.0	<5.0	[NA]

Envirolab ID	Units	PQL	PGK0298-11
Your Reference			MTM-WWTP-Station 3
Date Sampled			04/11/2025
pH	pH units		7.9
pH (True Colour)	pH units		[NA]
Electrical Conductivity	µS/cm	2.0	[NA]
Total Dissolved Solids	mg/L	5.0	[NA]
Total Suspended Solids	mg/L	5.0	<5.0
Turbidity	NTU	0.10	[NA]
Turbidity (filtered)*	NTU	0.10	[NA]
Colour (True)	PCU	5.0	[NA]

Certificate of Analysis PGK0298

Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	220	<5.0	<5.0	<5.0
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	220	<5.0	<5.0	<5.0
Chloride	mg/L	1.0	24000	18000	21000	20000	19000
Sulfate	mg/L	1.0	3900	2600	3200	3100	2800
Calcium	mg/L	0.50	130 [4]	350 [4]	120 [4]	120 [4]	120 [4]
Magnesium	mg/L	0.50	1800 [4]	1100 [4]	1400 [4]	1400 [4]	1300 [4]
Potassium	mg/L	0.50	270 [4]	240 [4]	250 [4]	250 [4]	250 [4]
Sodium	mg/L	0.50	14000 [4]	9700 [4]	12000 [4]	12000 [4]	11000 [4]
Hardness (calc) equivalent CaCO3	mg/L	3.0	7600 [4]	5400 [4]	6100 [4]	6100 [4]	5500 [4]
Ionic Balance	%		0.45	-2.1	-1.7	-0.27	-0.79

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09
Your Reference			PB09PBGCP02	PB10	PB11	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	120	110	170	380
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	120	110	170	380
Chloride	mg/L	1.0	22000	22000	21000	3800
Sulfate	mg/L	1.0	3400	3500	3300	690
Calcium	mg/L	0.50	760 [4]	740 [4]	670 [4]	88
Magnesium	mg/L	0.50	1500 [4]	1500 [4]	1400 [4]	420
Potassium	mg/L	0.50	230 [4]	230 [4]	230 [4]	24
Sodium	mg/L	0.50	11000 [4]	11000 [4]	11000 [4]	2000
Hardness (calc) equivalent CaCO3	mg/L	3.0	8100 [4]	7900 [4]	7600 [4]	1900
Ionic Balance	%		-2.5	-4.3	-2.7	-1.5

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Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025

Fluoride	mg/L	0.10	2.0	1.6	1.7	1.7	0.99
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Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09
Your Reference			PB09PBGCP02	PB10	PB11	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025

Fluoride	mg/L	0.10	0.82	0.92	0.99	0.19
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Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
Ferrous Iron	mg/L	0.050	7.8	<0.050	17	17	0.59

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09
Your Reference			PB09PBGCP02	PB10	PB11	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025
Ferrous Iron	mg/L	0.050	6.8	6.4	5.4	0.19

Certificate of Analysis PGK0298

Inorganics - Nutrients (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-01 MB01 04/11/2025	PGK0298-02 MB05 04/11/2025	PGK0298-03 PB03 04/11/2025	PGK0298-04 PB05 04/11/2025	PGK0298-05 PB06 04/11/2025
Ammonia as N	mg/L	0.0050	0.23	0.054	0.16	0.15	0.15
Nitrate as N	mg/L	0.0050	<0.0050	0.44	0.0059	0.023	0.12
Nitrate as NO3 by calculation	mg/L	0.020	<0.020	2.0	0.026	0.10	0.51
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite as NO2 by calculation	mg/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020
NOx as N	mg/L	0.0050	0.0050	0.44	0.0065	0.023	0.12
TKN as N by calculation	mg/L	0.10	0.31	0.54	0.36	0.27	0.22
Total Nitrogen	mg/L	0.10	0.32	0.98	0.37	0.29	0.34
Phosphate as P	mg/L	0.0050	0.029	0.029	0.034	0.033	0.040

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-06 PB09PBGCP02 04/11/2025	PGK0298-07 PB10 04/11/2025	PGK0298-08 PB11 04/11/2025	PGK0298-09 PB12 04/11/2025	PGK0298-10 MTM-WWTP-Stage2 04/11/2025
Ammonia as N	mg/L	0.0050	1.3	1.4	0.91	0.0069	[NA]
Nitrate as N	mg/L	0.0050	<0.050 [5]	<0.050 [5]	0.021	<0.0050	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	<0.20 [5]	<0.20 [5]	0.094	<0.020	[NA]
Nitrite as N	mg/L	0.0050	<0.050 [5]	<0.050 [5]	<0.0050	<0.0050	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	<0.20 [5]	<0.20 [5]	<0.020	<0.020	[NA]
NOx as N	mg/L	0.0050	<0.050 [5]	<0.050 [5]	0.022	<0.0050	[NA]
TKN as N by calculation	mg/L	0.10	1.5	1.6	1.1	0.15	[NA]
Total Nitrogen	mg/L	0.10	1.5	1.6	1.1	0.16	18
Phosphate as P	mg/L	0.0050	<0.0050	<0.050 [5]	0.021	0.031	[NA]

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-11 MTM-WWTP-Stage3 04/11/2025
Ammonia as N	mg/L	0.0050	[NA]
Nitrate as N	mg/L	0.0050	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	[NA]
Nitrite as N	mg/L	0.0050	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	[NA]
NOx as N	mg/L	0.0050	[NA]
TKN as N by calculation	mg/L	0.10	[NA]
Total Nitrogen	mg/L	0.10	33
Phosphate as P	mg/L	0.0050	[NA]

Certificate of Analysis PGK0298

Inorganics - Common Wastewater Parameters (Water)

Envirolab ID	Units	PQL	PGK0298-10	PGK0298-11
Your Reference			MTM-WWTP-Station ge2	MTM-WWTP-Station ge3
Date Sampled			04/11/2025	04/11/2025
BOD	mg/L	5.0	<5.0	<5.0

Certificate of Analysis PGK0298

Microbiological Suite (Water)

Envirolab ID Your Reference	Units	PQL	PGK0298-10 MTM-WWTP-Station ge2	PGK0298-11 MTM-WWTP-Station ge3
Date Sampled			04/11/2025	04/11/2025
Thermotolerant Coliforms	cfu/100mL	1	10 [1]	<10
E.coli	cfu/100mL	1	10 [1]	<10

Certificate of Analysis PGK0298

Subcontracted Radiological - Radium 226 and 228 - Certificate: ME386128 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGK0298-05	PGK0298-07	PGK0298-09
Your Reference			PB06	PB10	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025
Radium 226	Bq/L		14.7	0.669	<0.042
Radium 228	Bq/L		21.7	0.372	<0.11

Certificate of Analysis PGK0298

Subcontracted Radiological - Certificate: ME386128 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGK0298-05	PGK0298-07	PGK0298-09
Your Reference			PB06	PB10	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025
Gross alpha	Bq/L		16.8	1.31	0.495
Gross beta	Bq/L		25.4	1.03	<0.091
Lead-210	Bq/L		1.18	<0.22	<0.21

Certificate of Analysis PGK0298

Subcontracted Radiological - Potassium 40 - Certificate: ME386128 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGK0298-05	PGK0298-07	PGK0298-09
Your Reference			PB06	PB10	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025
Potassium-40	Bq/L		8.5	8.1	0.79

Certificate of Analysis PGK0298

Result Comments

Identifier	Description
[1]	Count is an estimate. Results derived from counts outside of the range of 10-80 are considered an estimate as per AS4276.1
[4]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[5]	PQL has been raised due to matrix requiring dilution
[8]	pale yellow cloudy solution

Certificate of Analysis PGK0298

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed. Blanks may yield EC readings >1µS/cm, this is likely due to adsorption of Carbon Dioxide while the blank sample is sat on the instrument autosampler prior to analysis. The values are generally insignificant (<5µS/cm) compared to most actual sample conductivities.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG-026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-091	BOD and/or cBOD - Analysed in accordance with APHA latest edition 5210 D.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
MICRO-001B	E. coli/Thermotolerant coliforms: Microbial Water Analysis - in accordance with MICRO-001 (AS4276.5-latest edition). Recommended maximums based on NHMRC Australian Drinking Water Guidelines. Please note that results for this test derived from counts outside of the range 10-80 are considered approximate as per AS4276.1.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGK0298

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGK0298

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates can be downloaded from the [Envirolab Resources website](#) or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGK0298

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	MTM Annual Groundwater Analysis 2025
Date Issued	05/12/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	No	Duplicate Outliers Exist - See detailed list below
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGK0298

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Total Phosphorus Water	9-11	04/11/2025	07/11/2025	07/11/2025	Yes
	1-5	04/11/2025	07/11/2025	10/11/2025	Yes
	6-8	04/11/2025	07/11/2025	12/11/2025	Yes
Dissolved Metals Water	1-5	04/11/2025	07/11/2025	10/11/2025	Yes
	9	04/11/2025	10/11/2025	10/11/2025	Yes
	6-8	04/11/2025	10/11/2025	11/11/2025	Yes
Dissolved Metals (LL) Water	1-5	04/11/2025	07/11/2025	08/11/2025	Yes
	6-9	04/11/2025	10/11/2025	11/11/2025	Yes
	5, 7, 9	04/11/2025	11/11/2025	13/11/2025	Yes
Dissolved Metals (LL)-Hg Water	1-9	04/11/2025	07/11/2025	10/11/2025	Yes
Colour-True Water	1-9	04/11/2025	07/11/2025	07/11/2025	Yes
EC Water	1-9	04/11/2025	06/11/2025	07/11/2025	Yes
pH Water	1-11	04/11/2025	06/11/2025	07/11/2025	No
pH (True Colour) Water	1-9	04/11/2025	06/11/2025	06/11/2025	Yes
TDS Water	1-9	04/11/2025	10/11/2025	10/11/2025	Yes
TSS Water	1-11	04/11/2025	10/11/2025	10/11/2025	Yes
Turbidity Water	1-9	04/11/2025	07/11/2025	10/11/2025	No
Turbidity (filtered) Water	1-9	04/11/2025	07/11/2025	10/11/2025	No
Alkalinity Suite Water	1-9	04/11/2025	06/11/2025	07/11/2025	Yes
Chloride Water	1-9	04/11/2025	07/11/2025	08/11/2025	Yes
Dissolved Cations Water	1-5	04/11/2025	07/11/2025	10/11/2025	Yes
	9	04/11/2025	10/11/2025	10/11/2025	Yes
	6-8	04/11/2025	10/11/2025	11/11/2025	Yes
Ion Balance Water	1-9	04/11/2025	07/11/2025	14/11/2025	Yes
Sulfate Water	1-9	04/11/2025	07/11/2025	08/11/2025	Yes
Fluoride Water	1-9	04/11/2025	06/11/2025	10/11/2025	Yes
Ferrous Iron Water	1-9	04/11/2025	07/11/2025	07/11/2025	Yes
Nitrogen - Ammonia Water	1-9	04/11/2025	07/11/2025	07/11/2025	Yes
Nitrogen - Nitrate Water	1-5, 8-9	04/11/2025	07/11/2025	07/11/2025	Yes
	6-7	04/11/2025	07/11/2025	10/11/2025	Yes
Nitrogen - Nitrite Water	1-5, 8-9	04/11/2025	07/11/2025	07/11/2025	No
	6-7	04/11/2025	07/11/2025	10/11/2025	No
Nitrogen - NOx Water	1-5, 8-9	04/11/2025	07/11/2025	07/11/2025	Yes
	6-7	04/11/2025	07/11/2025	10/11/2025	Yes
Nitrogen - Total N Water	1-11	04/11/2025	07/11/2025	09/11/2025	Yes
Phosphate as P Water	1-6, 8-9	04/11/2025	07/11/2025	07/11/2025	No
	7	04/11/2025	07/11/2025	10/11/2025	No
TKN as N calc Water	1-9	04/11/2025	06/11/2025	14/11/2025	Yes
BOD Water	10-11	04/11/2025	10/11/2025	17/11/2025	Yes
E. coli & T.T.coli Water	10-11	04/11/2025	05/11/2025	05/11/2025	Yes

Data Quality Assessment Summary PGK0298

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Radium 226 & 228 Water	5, 7, 9	04/11/2025	14/11/2025	14/11/2025	Yes
Gross alpha & beta Water	5, 7, 9	04/11/2025	12/11/2025	21/11/2025	Yes
Lead 210 Water	5, 7, 9	04/11/2025	14/11/2025	14/11/2025	Yes
GROSS_ALPHA_BETA_SGS Water	9	04/11/2025	01/11/2025	21/11/2025	Yes
	5, 7	04/11/2025	18/11/2025	21/11/2025	Yes

Outliers: Duplicates

METALS-020 | Dissolved Metals (Water) | Batch BGK0917

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BGK0917-DUP2#	DUP2	Silicon	20.00	114

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK0917

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BGK0917-DUP2#	DUP2	Calcium	20.00	96.6
BGK0917-DUP2#	DUP2	Hardness (calc) equivalent CaCO3	20.00	75.1
BGK0917-DUP2#	DUP2	Magnesium	20.00	20.3
BGK0917-DUP2#	DUP2	Sodium	20.00	50.7

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK1146

Sample ID	Duplicate ID	Analyte	% Limits	RPD
PGK0298-09	DUP2	Iron	20.00	167

Data Quality Assessment Summary PGK0298

Outliers: Matrix Spike

METALS-020 | Dissolved Metals (Water) | Batch BGK0917

Sample ID	Analyte	% Limits	% Recovery
BGK0917-MS1#	Silicon	70 - 130	##[3]

METALS-020 | Dissolved Metals (Water) | Batch BGK1147

Sample ID	Analyte	% Limits	% Recovery
BGK1147-MS1#	Silicon	70 - 130	##[2]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK0916

Sample ID	Analyte	% Limits	% Recovery
BGK0916-MS1#	Boron	70 - 130	##[2]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK1146

Sample ID	Analyte	% Limits	% Recovery
BGK1146-MS1#	Boron	70 - 130	##[2]
BGK1146-MS1#	Iron	70 - 130	##[2]
BGK1146-MS1#	Manganese	70 - 130	##[2]

Outliers: QC Frequency

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGK1336

Analysis	QC Type	Expected	Reported
BOD	Duplicate	2	0

Quality Control PGK0298

METALS-020 | Acid Extractable Metals (Water) | Batch BGK0913

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK0913-DUP1#	PGK0298-03	BGK0913-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Phosphorus	mg/L	0.050	<0.050	90.8 90.1 0.790	<0.25 <0.25 [NA]	89.9	92.1		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGK0917

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK0917-DUP1#	BGK0917-DUP2#	BGK0917-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Silicon	mg/L	0.10	<0.10	20.2 20.1 0.298	17.5 4.77 114	97.3	##[3]		
Silica	mg/L	0.20	<0.20	43.2 43.1 0.298	10.3 10.2 [NA]	[NA]	[NA]		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGK1147

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK1147-DUP1#	PGK0298-09	BGK1147-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Silicon	mg/L	0.10	<0.10	25.0 24.6 1.74	19.4 19.5 0.792	96.1	##[2]		
Silica	mg/L	0.20	<0.20	53.6 52.6 1.74	41.4 41.8 0.792	[NA]	[NA]		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK0916

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK0916-DUP1#	BGK0916-DUP2#	BGK0916-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.10 <0.10 [NA] [5]	86.8	82.6		
Arsenic	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	97.1	93.2		
Barium	mg/L	0.0010	<0.0010	0.0536 0.0545 1.61	0.435 0.394 9.77	99.0	99.8		
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.0050 <0.0050 [NA] [5]	90.9	88.1		
Boron	mg/L	0.020	<0.020	0.02 <0.020 [NA]	3.44 3.12 9.76	80.9	##[2]		
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.0010 <0.0010 [NA] [5]	100	96.7		
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	85.6	91.4		
Cobalt	mg/L	0.0010	<0.0010	0.00143 0.00139 [NA]	<0.010 <0.010 [NA] [5]	97.1	91.0		
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0150 0.0126 [NA]	94.8	90.6		
Iron	mg/L	0.010	<0.010	2.11 2.11 0.0464	4.71 4.17 12.1	82.2	98.2		
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	97.9	96.5		
Lithium	mg/L	0.0010	<0.0010	0.00915 0.00915 0.0437	0.668 0.600 10.6	96.7	93.7		
Manganese	mg/L	0.0010	<0.0010	0.0892 0.0877 1.64	9.69 8.39 14.4	92.8	87.2		
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	83.1	94.6		
Nickel	mg/L	0.0010	<0.0010	0.00265 0.00255 [NA]	<0.010 <0.010 [NA] [5]	96.9	90.6		
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	109	105		
Strontium	mg/L	0.0010	<0.0010	0.0471 0.0469 0.292	95.4 83.5 13.2	92.9	88.2		
Titanium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	89.6	87.1		
Vanadium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	95.9	93.6		
Zinc	mg/L	0.0010	<0.0010	0.00716 0.00706 1.29	0.0267 0.0243 [NA]	103	93.6		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGK0925

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK0925-DUP1#	BGK0925-DUP2#	BGK0925-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	92.8	82.0		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0298

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK1146

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK1146-DUP1#	PGK0298-09		
				Samp QC RPD %	Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	90.4	91.1
Arsenic	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00353 0.00325 [NA]	93.3	98.4
Barium	mg/L	0.0010	<0.0010	0.0330 0.0332 0.438	0.0229 0.0228 0.394	99.6	80.2
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	91.9	94.0
Boron	mg/L	0.020	<0.020	0.509 0.533 4.65	1.52 1.46 3.96	106	##[2]
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.00010 <0.00010 [NA]	102	98.3
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	100	91.6
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	95.2	90.2
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	91.8	89.2
Iron	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	0.342 0.0309 167	104	##[2]
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	98.0	91.8
Lithium	mg/L	0.0010	<0.0010	0.00856 0.00851 0.609	1.12 1.11 1.05	98.3	98.1
Manganese	mg/L	0.0010	<0.0010	0.0202 0.0200 0.958	0.0436 0.0430 1.18	91.2	##[2]
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00322 0.00296 [NA]	82.2	97.4
Nickel	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00108 <0.0010 [NA] [6]	94.3	88.1
Selenium	mg/L	0.0010	<0.0010	0.00207 0.00201 [NA]	<0.0010 <0.0010 [NA]	102	103
Strontium	mg/L	0.0010	<0.0010	0.280 0.279 0.147	0.607 0.605 0.394	92.2	70.6
Thorium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	90.4	85.2
Titanium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	86.0	90.5
Uranium	mg/L	0.0010	<0.0010	0.00117 0.00117 [NA]	0.00634 0.00630 0.633	100	93.7
Vanadium	mg/L	0.0010	<0.0010	0.0104 0.0104 0.221	<0.0010 <0.0010 [NA]	93.0	97.3
Zinc	mg/L	0.0010	<0.0010	0.00102 0.00105 [NA]	<0.0010 <0.0010 [NA]	97.0	88.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK1611

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK1611-DUP1#	BGK1611-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.00497 0.00501 [NA]	0.0380 0.0384 1.04	94.6	94.2
Thorium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	96.5	89.1
Uranium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0140 0.0140 0.129	86.6	95.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGK0730

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK0730-DUP1#	BGK0730-DUP2#	
				Samp QC RPD %	Samp QC RPD %	
pH	pH units		6.0	7.7 7.7 0.261	7.6 7.7 0.131	102
Electrical Conductivity	µS/cm	2.0	2.40	1150 1160 1.11	1210 1210 0.149	99.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGK0822

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK0822-DUP1#	PGK0298-03	
				Samp QC RPD %	Samp QC RPD %	
pH (True Colour)	pH units		6.5	8.0 8.0 0.375	4.4 4.3 0.230	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0298

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGK0896

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGK0298-01 Samp QC RPD %	BGK0896-DUP2# Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	<5.0 <5.0 [NA]	5.53 5.18 [NA]	104

Analyte	Units	PQL	Blank			LCS %
Colour (True)	PCU	5.0	<5.0			[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGK1056

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK1056-DUP1# Samp QC RPD %	PGK0298-02 Samp QC RPD %	
Turbidity (filtered)	NTU	0.10	<0.10	202 198 2.00	0.460 0.480 [NA]	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGK1058

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK1058-DUP1# Samp QC RPD %	PGK0298-09 Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	0.320 0.340 [NA]	1.73 1.71 1.16	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGK1204

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK1204-DUP1# Samp QC RPD %	PGK0298-02 Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	13600 13700 0.732	27900 32700 15.8	94.9

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGK1205

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK1205-DUP1# Samp QC RPD %	PGK0298-10 Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	952 914 4.07	5.00 5.00 [NA]	90.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK0730

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK0730-DUP1# Samp QC RPD %	BGK0730-DUP2# Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	284 278 2.44	341 328 3.62	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	284 277 2.44	341 328 3.62	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0298

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK0917

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0917-DUP1# Samp QC RPD %	BGK0917-DUP2# Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	3.23 3.25 0.420	6030 17300 96.6	94.1	94.9
Magnesium	mg/L	0.50	<0.50	19.7 19.9 1.19	2490 3050 20.3	95.6	96.5
Potassium	mg/L	0.50	<0.50	3.25 3.23 0.544	553 576 4.03	97.0	99.6
Sodium	mg/L	0.50	<0.50	221 222 0.339	31400 52700 50.7	89.0	89.2
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	89.0 90.0 1.12	25300 55800 75.1	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK1019

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGK0298-01 Samp QC RPD %	BGK1019-DUP2# Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	24500 24400 0.370	<1.0 <1.0 [NA]	103	91.9
Sulfate	mg/L	1.0	<1.0	3880 3900 0.327	<1.0 <1.0 [NA]	98.8	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK1147

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK1147-DUP1# Samp QC RPD %	PGK0298-09 Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	110 107 2.13	87.8 87.3 0.523	94.8	83.1
Magnesium	mg/L	0.50	<0.50	61.8 60.3 2.60	419 418 0.311	97.0	83.9
Potassium	mg/L	0.50	<0.50	<0.50 <0.50 [NA]	24.1 24.1 0.0956	95.0	93.6
Sodium	mg/L	0.50	<0.50	89.3 88.6 0.720	1960 1980 0.959	93.1	73.8
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	528 516 2.36	1940 1940 0.335	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGK0732

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0732-DUP1# Samp QC RPD %	PGK0298-01 Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	0.110 <0.10 [NA] [6]	2.00 1.96 2.12	102	100

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGK1008

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK1008-DUP1# Samp QC RPD %	PGK0298-02 Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	620 634 2.37	<0.050 <0.050 [NA]	106	117

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0298

INORG-057 | Inorganics - Nutrients (Water) | Batch BGK0896

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGK0298-01 Samp QC RPD %	BGK0896-DUP2# Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	0.228 0.234 2.47	1.51 1.53 1.37	93.2	101
Nitrate as N	mg/L	0.0050	<0.0050	<0.0050 0.00542 [NA] [6]	2.37 2.38 0.680	110	109
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0472 0.0477 1.17	[NA]	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	0.00505 0.00587 [NA]	2.41 2.43 0.690	110	108
Phosphate as P	mg/L	0.0050	<0.0050	0.0292 0.0265 9.94	1.45 1.45 0.366	118	100

Analyte	Units	PQL	Blank	LCS %	Spike %
Ammonia as N	mg/L	0.0050	<0.0050	[NA]	[NA]
Nitrate as N	mg/L	0.0050	<0.0050	[NA]	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	<0.020	[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	93.0	114
Nitrite as NO2 by calculation	mg/L	0.020	<0.020	[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	[NA]	[NA]
Phosphate as P	mg/L	0.0050	<0.0050	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGK0994

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0994-DUP1# Samp QC RPD %	PGK0298-04 Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	0.476 0.556 15.5	0.289 0.302 [NA]	97.0	93.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGK1336

Analyte	Units	PQL	Blank	LCS %
BOD	mg/L	5.0	<5.0	83.3

MICRO-001B | Microbiological Suite (Water) | Batch BGK0758

Analyte	Units	PQL	Blank	LCS %
Thermotolerant Coliforms	cfu/100mL	1	<1	[NA]
E.coli	cfu/100mL	1	<1	[NA]

QC Comments

Identifier	Description
[2]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[3]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[5]	PQL has been raised due to matrix requiring dilution
[6]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.



Certificate of Analysis PGB0878

Client Details

Client Process Minerals International Pty Ltd (PMI)
Contact [REDACTED]
Address 20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference Mount Marion - MTM Groundwater - Quarterly
Number of Samples 11 Water
Date Samples Received 13/02/2025
Date Instructions Received 13/02/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Results Requested by 16/04/2025
Date of Reissue 01/05/2025 - This report supercedes previous report, see amendment history for details

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Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By Hien Luong, Chemist - FAS
Jessica Miller, Microbiological Supervisor
Lien Tang, Assistant Operations Manager
Lucas Yij, Inorganics Team Leader
Michael Mowle, Development Chemist - Inorganics and Metals
Travis Carey, Organics Supervisor
Varsha Ho Wing, Inorganics and Metals Supervisor
Laboratory Manager Michael Kubiak

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Report Amendment History

Revision	Reason for Amendment
R-01	Updated to include Radiological data.

ATTACHMENT C – CERTIFICATES OF ANALYSIS – WASTEWATER – TREATED EFFLUENT

Certificate of Analysis PGB0878

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PGB0878-01	MTM-MB21MMN02B	Water	12/02/2025	13/02/2025
PGB0878-02	MTM-MB19MMC03	Water	12/02/2025	13/02/2025
PGB0878-03	MTM-MB21WRD02B	Water	12/02/2025	13/02/2025
PGB0878-04	MTM-PB06	Water	12/02/2025	13/02/2025
PGB0878-05	MTM-PB10	Water	12/02/2025	13/02/2025
PGB0878-06	MTM-PB12	Water	12/02/2025	13/02/2025
PGB0878-07	MTM-PRW-TN001	Water	12/02/2025	13/02/2025
PGB0878-08	MTM-PW-AMGWashbay	Water	12/02/2025	13/02/2025
PGB0878-09	MTM-WWTP-Stage2	Water	12/02/2025	13/02/2025
PGB0878-10	MTM-WWTP-Stage3	Water	12/02/2025	13/02/2025
PGB0878-11	Duplicate	Water	12/02/2025	13/02/2025

Sample Comments

General Comment	Free ice water was found to be surrounding samples within the esky(ies) provided; there is the potential for cross contamination.
MTM-PB06	Bottles labelled 'PB05'
MTM-PW-AMGWashbay	Bottles labelled 'AMG OWS'
MTM-WWTP-Stage2	Bottles labelled 'WWTP SBR1'
MTM-WWTP-Stage3	Bottles labelled 'WWTP SBR2'

Certificate of Analysis PGB0878

Volatile TRH and BTEX (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-08 MTM-PW-AMGW ashbay 12/02/2025
Date Sampled			
Total Xylene	µg/L		
TRH C6-C10 less BTEX (F1)	µg/L		
TRH C6-C9	µg/L	10	<10
TRH C6-C10	µg/L	10	<10
TRH C6-C10 less BTEX (F1)	µg/L	10	
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0
Benzene	µg/L	1.0	<1.0
Toluene	µg/L	1.0	<1.0
Ethylbenzene	µg/L	1.0	<1.0
meta+para Xylene	µg/L	2.0	<2.0
ortho-Xylene	µg/L	1.0	<1.0
Total +ve Xylenes	µg/L	1.0	
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0
Total +ve BTEX	µg/L	1.0	
<i>Surrogate Dibromofluoromethane</i>	%		129
<i>Surrogate Toluene-D8</i>	%		101
<i>Surrogate 4-Bromofluorobenzene</i>	%		104

Certificate of Analysis PGB0878

Semi-volatile TRH (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-08 MTM-PW-AMGW ashbay 12/02/2025
Date Sampled			
TRH C10-C14	µg/L	50	67
TRH C15-C28	µg/L	100	600
TRH C29-C36	µg/L	100	100
Total +ve TRH C10-C36	µg/L	50	
TRH >C10-C16	µg/L	50	150
TRH >C10-C16 less Naphthalene F2	µg/L	50	
TRH >C16-C34 (F3)	µg/L	100	570
TRH >C34-C40 (F4)	µg/L	100	<100
Total +ve TRH >C10-C40	µg/L	50	
<i>Surrogate o-Terphenyl</i>	%		78.1

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Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGB0878-01	PGB0878-02	PGB0878-03	PGB0878-09	PGB0878-10
Your Reference			MTM-MB21MMN 02B	MTM-MB19MMC 03	MTM-MB21WRD 02B	MTM-WWTP-Station ge2	MTM-WWTP-Station ge3
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025	12/02/2025
Phosphorus	mg/L	0.050	1.2	<0.050	<0.25 [4]	10	9.7

Envirolab ID	Units	PQL	PGB0878-11
Your Reference			Duplicate
Date Sampled			12/02/2025
Phosphorus	mg/L	0.050	<0.25 [4]

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Dissolved Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-01 MTM-MB21MMN 02B 12/02/2025	PGB0878-02 MTM-MB19MMC 03 12/02/2025	PGB0878-03 MTM-MB21WRD 02B 12/02/2025	PGB0878-11 Duplicate 12/02/2025
Silicon	mg/L	0.10	35	25	13	14
Silica*	mg/L	0.20	74	54	27	29

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-01 MTM-MB21MMN 02B	PGB0878-02 MTM-MB19MMC 03	PGB0878-03 MTM-MB21WRD 02B	PGB0878-04 MTM-PB06	PGB0878-05 MTM-PB10
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025	12/02/2025
Aluminium	mg/L	0.010	0.11	<0.010	<0.020	[NA]	[NA]
Arsenic	mg/L	0.0010	<0.0010	0.0057	<0.0020	[NA]	[NA]
Boron	mg/L	0.020	5.0	5.3	12	[NA]	[NA]
Barium	mg/L	0.0010	0.017	0.14	0.076	[NA]	[NA]
Beryllium	mg/L	0.00050	0.0048	<0.00050	<0.0010	[NA]	[NA]
Cadmium	mg/L	0.00010	0.00040	<0.00010	<0.00020	[NA]	[NA]
Cobalt	mg/L	0.0010	0.0058	0.019	0.032	[NA]	[NA]
Chromium	mg/L	0.0010	<0.0010	0.0010	<0.0020	[NA]	[NA]
Copper	mg/L	0.0010	<0.0010	0.0062	<0.0020	[NA]	[NA]
Iron	mg/L	0.010	940	0.035	35	[NA]	[NA]
Mercury	mg/L	0.000050	<0.000050	<0.000050	<0.000050	[NA]	[NA]
Lithium	mg/L	0.0010	2.3	0.81	1.0	[NA]	[NA]
Manganese	mg/L	0.0010	5.4	1.9	12	[NA]	[NA]
Molybdenum	mg/L	0.0010	<0.0010	0.0018	0.0030	[NA]	[NA]
Nickel	mg/L	0.0010	0.048	0.036	0.0084	[NA]	[NA]
Lead	mg/L	0.0010	<0.0010	<0.0010	<0.0020	[NA]	[NA]
Rubidium*	mg/L	0.0010	[NA]	[NA]	[NA]	0.16	1.5
Selenium	mg/L	0.0010	<0.0010	0.0016	<0.0020	[NA]	[NA]
Strontium	mg/L	0.0010	0.22	2.2	6.3	[NA]	[NA]
Thorium	mg/L	0.00050	[NA]	[NA]	[NA]	0.0041	0.0016
Titanium	mg/L	0.0010	<0.0010	<0.0010	<0.0020	[NA]	[NA]
Uranium	mg/L	0.0010	[NA]	[NA]	[NA]	0.094	0.047
Vanadium	mg/L	0.0010	<0.0010	0.0034	<0.0020	[NA]	[NA]
Zinc	mg/L	0.0010	23	0.055	0.0085	[NA]	[NA]

Envirolab ID Your Reference	Units	PQL	PGB0878-06 MTM-PB12	PGB0878-07 MTM-PRW-TN00 1	PGB0878-11 Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025
Aluminium	mg/L	0.010	[NA]	[NA]	<0.020
Arsenic	mg/L	0.0010	[NA]	[NA]	<0.0020
Boron	mg/L	0.020	[NA]	[NA]	12
Barium	mg/L	0.0010	[NA]	[NA]	0.077
Beryllium	mg/L	0.00050	[NA]	[NA]	<0.0010
Cadmium	mg/L	0.00010	[NA]	[NA]	<0.00020
Cobalt	mg/L	0.0010	[NA]	[NA]	0.033
Chromium	mg/L	0.0010	[NA]	[NA]	<0.0020
Copper	mg/L	0.0010	[NA]	[NA]	<0.0020
Iron	mg/L	0.010	[NA]	[NA]	35
Mercury	mg/L	0.000050	[NA]	[NA]	<0.000050
Lithium	mg/L	0.0010	[NA]	[NA]	1.0
Manganese	mg/L	0.0010	[NA]	[NA]	12
Molybdenum	mg/L	0.0010	[NA]	[NA]	0.0032
Nickel	mg/L	0.0010	[NA]	[NA]	0.0088
Lead	mg/L	0.0010	[NA]	[NA]	<0.0020
Rubidium*	mg/L	0.0010	0.10	1.4	[NA]

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-06 MTM-PB12	PGB0878-07 MTM-PRW-TN00 1	PGB0878-11 Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025
Selenium	mg/L	0.0010	[NA]	[NA]	<0.0020
Strontium	mg/L	0.0010	[NA]	[NA]	6.4
Thorium	mg/L	0.00050	<0.00050	0.00059	[NA]
Titanium	mg/L	0.0010	[NA]	[NA]	<0.0020
Uranium	mg/L	0.0010	0.0058	0.051	[NA]
Vanadium	mg/L	0.0010	[NA]	[NA]	<0.0020
Zinc	mg/L	0.0010	[NA]	[NA]	0.0074

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Inorganics - Physical Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-01 MTM-MB21MMN 02B	PGB0878-02 MTM-MB19MMC 03	PGB0878-03 MTM-MB21WRD 02B	PGB0878-08 MTM-PW-AMGW ashbay	PGB0878-09 MTM-WWTP-Sta ge2
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025	12/02/2025
pH	pH units		5.6	7.4	6.8	8.3	7.9
Electrical Conductivity	µS/cm	2.0	19000	22000	53000	29000	[NA]
Total Dissolved Solids	mg/L	5.0	14000	14000	40000	[NA]	[NA]
Total Suspended Solids	mg/L	5.0	480	46	71	[NA]	<5.0
Turbidity	NTU	0.10	460 [12]	12	320 [12]	[NA]	[NA]
Turbidity (filtered)*	NTU	0.10	220 [12]	0.43	250 [12]	[NA]	[NA]
Colour (True)	PCU	5.0	560	12	580	[NA]	[NA]

Envirolab ID Your Reference	Units	PQL	PGB0878-10 MTM-WWTP-Sta ge3	PGB0878-11 Duplicate
Date Sampled			12/02/2025	12/02/2025
pH	pH units		7.7	6.8
Electrical Conductivity	µS/cm	2.0	[NA]	54000
Total Dissolved Solids	mg/L	5.0	[NA]	38000
Total Suspended Solids	mg/L	5.0	8.5	92
Turbidity	NTU	0.10	[NA]	320 [12]
Turbidity (filtered)*	NTU	0.10	[NA]	260 [12]
Colour (True)	PCU	5.0	[NA]	470

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Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-01 MTM-MB21MMN 02B	PGB0878-02 MTM-MB19MMC 03	PGB0878-03 MTM-MB21WRD 02B	PGB0878-11 Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	36	920	270	270
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	36	920	270	270
Chloride	mg/L	1.0	5400	7200	22000	22000
Sulfate	mg/L	1.0	4600	2100	3500	3400
Calcium	mg/L	0.50	130	200	280	290
Magnesium	mg/L	0.50	510	820	1500	1500
Potassium	mg/L	0.50	46	54	240	240
Sodium	mg/L	0.50	2900	3400	11000	12000
Hardness (calc) equivalent CaCO3	mg/L	3.0	2400	3900	6700	6800
Ionic Balance	%		-18	-7.7	-6.7	-3.5

Certificate of Analysis PGB0878

Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGB0878-01	PGB0878-02	PGB0878-03	PGB0878-11
Your Reference			MTM-MB21MMN 02B	MTM-MB19MMC 03	MTM-MB21WRD 02B	Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Fluoride	mg/L	0.10	1.1	0.93	0.51	0.49

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Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGB0878-01	PGB0878-02	PGB0878-03	PGB0878-11
Your Reference			MTM-MB21MMN 02B	MTM-MB19MMC 03	MTM-MB21WRD 02B	Duplicate
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Ferrous Iron	mg/L	0.050	860	<0.050	39	38

Certificate of Analysis PGB0878

Inorganics - Nutrients (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-01 MTM-MB21MMN 02B	PGB0878-02 MTM-MB19MMC 03	PGB0878-03 MTM-MB21WRD 02B	PGB0878-09 MTM-WWTP-Station 2	PGB0878-10 MTM-WWTP-Station 3
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025	12/02/2025
Ammonia as N	mg/L	0.0050	0.20	0.042	0.23	[NA]	[NA]
Nitrate as N	mg/L	0.0050	<0.10 [3]	0.15	<0.10 [3]	[NA]	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	<0.40 [3]	0.68	<0.40 [3]	[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.10 [3]	0.064	<0.10 [3]	[NA]	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	<0.40 [3]	0.21	<0.40 [3]	[NA]	[NA]
NOx as N	mg/L	0.0050	<0.10 [3]	0.22	<0.10 [3]	[NA]	[NA]
TKN as N by calculation	mg/L	0.10	0.65	0.58	0.40	[NA]	[NA]
Total Nitrogen	mg/L	0.10	0.65	0.80	0.40	11	40
Phosphate as P	mg/L	0.0050	<0.050 [3]	0.029	<0.10 [3]	[NA]	[NA]

Envirolab ID Your Reference	Units	PQL	PGB0878-11 Duplicate
Date Sampled			12/02/2025
Ammonia as N	mg/L	0.0050	0.16
Nitrate as N	mg/L	0.0050	<0.10 [3]
Nitrate as NO3 by calculation	mg/L	0.020	<0.40 [3]
Nitrite as N	mg/L	0.0050	<0.10 [3]
Nitrite as NO2 by calculation	mg/L	0.020	<0.40 [3]
NOx as N	mg/L	0.0050	<0.10 [3]
TKN as N by calculation	mg/L	0.10	0.56
Total Nitrogen	mg/L	0.10	0.56
Phosphate as P	mg/L	0.0050	<0.050 [3]

Certificate of Analysis PGB0878

Inorganics - Common Wastewater Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-08 MTM-PW-AMGW ashbay	PGB0878-09 MTM-WWTP-Sta ge2	PGB0878-10 MTM-WWTP-Sta ge3
Date Sampled			12/02/2025	12/02/2025	12/02/2025
BOD	mg/L	5.0	[NA]	18	18
MBAS	mg/L	0.10	1.2	[NA]	[NA]

Certificate of Analysis PGB0878

Microbiological Suite (Water)

Envirolab ID Your Reference	Units	PQL	PGB0878-09 MTM-WWTP-Station ge2	PGB0878-10 MTM-WWTP-Station ge3
Date Sampled			12/02/2025	12/02/2025
Thermotolerant Coliforms	cfu/100mL	1	<10	<10
E.coli	cfu/100mL	1	<10	<10

Certificate of Analysis PGB0878

Subcontracted Radiological - Certificate: ME370608 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGB0878-04	PGB0878-05	PGB0878-06	PGB0878-07
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12	MTM-PRW-TN00 1
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Gross alpha	Bq/L		9.2	0.91	0.5	1.6
Gross beta	Bq/L		14	0.67	0.081	0.81
Lead-210	Bq/L		1.16	<0.21	<0.15	<0.19
Radium 226	Bq/L		12.3	0.393	<0.036	0.844
Radium 228	Bq/L		12.6	0.339	<0.079	0.402

Certificate of Analysis PGB0878

Subcontracted Radiological - Potassium 40 - Certificate: ME370608 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGB0878-04	PGB0878-05	PGB0878-06	PGB0878-07
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12	MTM-PRW-TN00 1
Date Sampled			12/02/2025	12/02/2025	12/02/2025	12/02/2025
Potassium-40	Bq/L		8.1	7.6	0.74	7.4

Certificate of Analysis PGB0878

Result Comments

Identifier	Description
[3]	PQL(s) has/have been raised due to matrix interference.
[4]	PQL has been raised due to matrix requiring dilution
[12]	sample is coloured and cloudy

Certificate of Analysis PGB0878

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-021	Methylene Blue Active Substances - determined colorimetrically, based on APHA latest edition, Method 5540-C. Solid samples extracted with water.
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG-026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-091	BOD and/or cBOD - Analysed in accordance with APHA latest edition 5210 D.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
MICRO-001B	E. coli/Thermotolerant coliforms: Microbial Water Analysis - in accordance with MICRO-001 (AS4276.5-latest edition). Recommended maximums based on NHMRC Australian Drinking Water Guidelines. Please note that results for this test derived from counts outside of the range 10-80 are considered approximate as per AS4276.1.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).

Certificate of Analysis PGB0878

Method Summary

Method ID	Methodology Summary
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGB0878

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGB0878

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGB0878

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	Mount Marion - MTM Groundwater - Quarterly
Date Issued	01/05/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	No	Duplicate Outliers Exist - See detailed list below
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGB0878

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Water	8	12/02/2025	18/02/2025	19/02/2025	Yes
sTRH Water	8	12/02/2025	18/02/2025	20/02/2025	Yes
Total Phosphorus Water	1	12/02/2025	17/02/2025	18/02/2025	Yes
	2, 9-10	12/02/2025	17/02/2025	19/02/2025	Yes
	3, 11	12/02/2025	17/02/2025	20/02/2025	Yes
Dissolved Metals Water	1-2	12/02/2025	17/02/2025	17/02/2025	Yes
	3, 11	12/02/2025	17/02/2025	18/02/2025	Yes
Dissolved Metals (LL) Water	4-7	12/02/2025	04/03/2025	04/03/2025	Yes
	1-3, 11	12/02/2025	17/02/2025	17/02/2025	Yes
Dissolved Metals (LL)-Hg Water	1-3, 11	12/02/2025	19/02/2025	19/02/2025	Yes
Colour-True Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
EC Water	1-3, 8, 11	12/02/2025	14/02/2025	14/02/2025	Yes
pH Water	1-3, 8-11	12/02/2025	14/02/2025	14/02/2025	No
TDS Water	1-3, 11	12/02/2025	25/02/2025	25/02/2025	No
TSS Water	1-3, 11	12/02/2025	25/02/2025	25/02/2025	No
	9-10	12/02/2025	25/02/2025	26/02/2025	No
Turbidity Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Turbidity (filtered) Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Alkalinity Suite Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Chloride Water	1-3, 11	12/02/2025	17/02/2025	17/02/2025	Yes
Dissolved Cations Water	1-2	12/02/2025	17/02/2025	17/02/2025	Yes
	3, 11	12/02/2025	17/02/2025	18/02/2025	Yes
Ion Balance Water	1-3, 11	12/02/2025	17/02/2025	21/02/2025	Yes
Sulfate Water	1-3, 11	12/02/2025	17/02/2025	17/02/2025	Yes
Fluoride Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Ferrous Iron Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - Ammonia Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - Nitrate Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - Nitrite Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - NOx Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
Nitrogen - Total N Water	1-3, 9-11	12/02/2025	18/02/2025	18/02/2025	Yes
Phosphate as P Water	1-3, 11	12/02/2025	14/02/2025	14/02/2025	Yes
TKN as N calc Water	1-3, 11	12/02/2025	17/02/2025	21/02/2025	Yes
BOD Water	9-10	12/02/2025	04/03/2025	05/03/2025	Yes
MBAS Water	8	12/02/2025	13/02/2025	14/02/2025	Yes
E. coli & T.T.coli Water	9-10	12/02/2025	13/02/2025	13/02/2025	Yes
Gross alpha & beta Water	4-7	12/02/2025	18/02/2025	26/03/2025	Yes
Lead 210 Water	4-7	12/02/2025	18/02/2025	26/03/2025	Yes

Data Quality Assessment Summary PGB0878

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Radium 226 & 228 Water	4-7	12/02/2025	18/02/2025	26/03/2025	Yes
GROSS_ALPHA_BETA_SGS Water	4-7	12/02/2025	18/02/2025	26/03/2025	Yes

Outliers: Duplicates

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGB4137

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BGB4137-DUP2#	DUP2	Total Suspended Solids	20.00	200[5]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGC0199

Sample ID	Duplicate ID	Analyte	% Limits	RPD
PGB0878-04	DUP1	Thorium	20.00	54.8[6]

Data Quality Assessment Summary PGB0878

Outliers: Matrix Spike

METALS-020 | Dissolved Metals (Water) | Batch BGB2793

Sample ID	Analyte	% Limits	% Recovery
BGB2793-MS1#	Silicon	70 - 130	##[1]

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGB2793

Sample ID	Analyte	% Limits	% Recovery
BGB2793-MS1#	Calcium	70 - 130	##[1]
BGB2793-MS1#	Magnesium	70 - 130	##[1]
BGB2793-MS1#	Potassium	70 - 130	##[1]
BGB2793-MS1#	Sodium	70 - 130	##[1]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGB2792

Sample ID	Analyte	% Limits	% Recovery
BGB2792-MS1#	Boron	70 - 130	##[1]
BGB2792-MS1#	Iron	70 - 130	##[1]
BGB2792-MS1#	Strontium	70 - 130	##[1]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGC0199

Sample ID	Analyte	% Limits	% Recovery
PGB0878-05	Rubidium	70 - 130	##[1]

Outliers: QC Frequency

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGC0301

Analysis	QC Type	Expected	Reported
BOD	Duplicate	2	0

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGB3097

Analysis	QC Type	Expected	Reported
VTRH&MBTEXN	Duplicate	2	0
	Matrix Spike	1	0

Quality Control PGB0878

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGB3097

Analyte	Units	PQL	Blank	LCS %
Total Xylene	µg/L		<3.0	[NA]
TRH C6-C10 less BTEX (F1)	µg/L		<10	[NA]
TRH C6-C9	µg/L	10	<10	91.4
TRH C6-C10	µg/L	10	<10	97.9
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	[NA]
Benzene	µg/L	1.0	<1.0	106
Toluene	µg/L	1.0	<1.0	109
Ethylbenzene	µg/L	1.0	<1.0	99.8
meta+para Xylene	µg/L	2.0	<2.0	101
ortho-Xylene	µg/L	1.0	<1.0	101
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	[NA]
<i>Surrogate Dibromofluoromethane</i>	%		121	101
<i>Surrogate Toluene-D8</i>	%		99.7	104
<i>Surrogate 4-Bromofluorobenzene</i>	%		100	98.0

ORG-020 | Semi-volatile TRH (Water) | Batch BGB2973

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2973-DUP1# Samp QC RPD %	BGB2973-DUP2# Samp QC RPD %		
TRH C10-C14	µg/L	50	<50	<50 <50 [NA]	577 511 12.1	74.8	92.6
TRH C15-C28	µg/L	100	<100	<100 <100 [NA]	9570 9880 3.19	96.1	110
TRH C29-C36	µg/L	100	<100	<100 <100 [NA]	1160 1010 13.7	108	122
TRH >C10-C16	µg/L	50	<50	<50 <50 [NA]	1610 1570 2.87	80.2	98.9
TRH >C16-C34 (F3)	µg/L	100	<100	<100 <100 [NA]	9510 9720 2.15	98.4	111
TRH >C34-C40 (F4)	µg/L	100	<100	<100 <100 [NA]	434 286 [NA]	103	115
<i>Surrogate o-Terphenyl</i>	%		99.1	76.8 100	## ## [NA] [2]	75.2	95.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Water) | Batch BGB2834

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2834-DUP1# Samp QC RPD %	BGB2834-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	<0.050 <0.050 [NA]	<0.25 <0.25 [NA] [4]	106	95.7

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Water) | Batch BGB2835

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGB0878-02 Samp QC RPD %	BGB2835-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	<0.050 <0.050 [NA]	0.0713 0.0632 [NA]	120	98.9

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGB2793

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2793-DUP1# Samp QC RPD %	BGB2793-DUP2# Samp QC RPD %		
Silicon	mg/L	0.1		8.42 8.46 0.440	27.0 26.3 2.68	96.5	## [1]
Silica	mg/L	0.20	<0.20	18.0 18.1 0.440	57.8 56.3 2.68	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGB0878

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGB2792

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2792-DUP1# Samp QC RPD %	BGB2792-DUP2# Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	99.3	104
Arsenic	mg/L	0.0010	<0.0010	0.00119 0.00113 [NA]	<0.0010 <0.0010 [NA]	103	107
Barium	mg/L	0.0010	<0.0010	0.0508 0.0513 1.04	0.0416 0.0414 0.581	100	97.4
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	95.5	98.8
Boron	mg/L	0.020	<0.020	3.10 3.25 4.80	0.0630 0.0513 [NA] [6]	98.7	##[1]
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.00010 <0.00010 [NA]	105	102
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	99.6	102
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00150 0.00153 [NA]	101	97.5
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00820 0.00836 1.97	99.8	92.2
Iron	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	107	##[1]
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	103	91.6
Lithium	mg/L	0.0010	<0.0010	0.0230 0.0236 2.54	0.00118 0.00112 [NA]	101	96.3
Manganese	mg/L	0.0010	<0.0010	0.0771 0.0804 4.17	0.0841 0.0846 0.680	98.1	96.0
Molybdenum	mg/L	0.0010	<0.0010	0.0269 0.0267 0.971	<0.0010 <0.0010 [NA]	105	122
Nickel	mg/L	0.0010	<0.0010	0.00181 0.00194 [NA]	0.0140 0.0141 1.35	99.5	92.4
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00200 0.00203 [NA]	109	101
Strontium	mg/L	0.0010	<0.0010	5.65 5.83 3.05	0.0783 0.0789 0.731	99.8	##[1]
Titanium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	99.9	106
Vanadium	mg/L	0.0010	<0.0010	0.00352 0.00369 [NA]	<0.0010 <0.0010 [NA]	100	107
Zinc	mg/L	0.0010	<0.0010	0.00161 0.00185 [NA]	0.0520 0.0529 1.56	102	92.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGB3181

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB3181-DUP1# Samp QC RPD %	BGB3181-DUP2# Samp QC RPD %		
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	103	87.6

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGC0199

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				PGB0878-04 Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.158 0.161 1.69	103	##[1]
Thorium	mg/L	0.00050	<0.00050	0.00407 0.00232 54.8 [6]	96.2	84.2
Uranium	mg/L	0.0010	<0.0010	0.0939 0.0916 2.51	104	86.7

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGB2275

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGB2275-DUP1# Samp QC RPD %	PGB0878-11 Samp QC RPD %	
pH	pH units		5.7	8.1 8.0 0.373	6.8 6.8 0.00	102
Electrical Conductivity	µS/cm	2.0	<2.0	402 403 0.248	54200 54100 0.115	107

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGB0878

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGB2321

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGB2321-DUP1# Samp QC RPD %	PGB0878-02 Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	<5.0 <5.0 [NA]	12.0 12.7 [NA]	85.6

Analyte	Units	PQL	Blank			LCS %
Colour (True)	PCU	5.0	<5.0			[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGB2514

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGB2514-DUP1# Samp QC RPD %	PGB0878-01 Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	2.92 2.84 2.78	464 461 0.649	91.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGB2516

Analyte	Units	PQL	Blank	DUP1			LCS %
				PGB0878-01 Samp QC RPD %			
Turbidity (filtered)	NTU	0.10	<0.10	218 212 2.79			91.5

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGB4136

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGB0878-01 Samp QC RPD %	BGB4136-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	13600 13400 1.33	250 246 1.61	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGB4137

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGB0878-01 Samp QC RPD %	BGB4137-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	482 487 1.03	INS INS 200 [5]	95.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGB4336

Analyte	Units	PQL	Blank	DUP1			LCS %
				BGB4336-DUP1# Samp QC RPD %			
Total Suspended Solids	mg/L	5.0	<5.0	75.0 79.0 5.19			95.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGB2275

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGB2275-DUP1# Samp QC RPD %	PGB0878-11 Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	20.6 20.3 [NA]	272 266 2.53	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	20.6 20.3 [NA]	272 266 2.53	98.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGB0878

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGB2639

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGB0878-01 Samp QC RPD %	BGB2639-DUP2# Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	5430 5430 0.000441	150 150 0.193	100	93.1
Sulfate	mg/L	1.0	<1.0	4570 4570 0.182	<1.0 <1.0 [NA]	98.4	117

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGB2793

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2793-DUP1# Samp QC RPD %	BGB2793-DUP2# Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	486 484 0.338	8.26 8.07 2.36	82.4	##[1]
Magnesium	mg/L	0.50	<0.50	392 390 0.535	15.7 15.1 3.68	88.9	##[1]
Potassium	mg/L	0.50	<0.50	74.8 75.6 1.04	3.46 3.25 6.16	91.6	##[1]
Sodium	mg/L	0.50	<0.50	4980 4950 0.725	126 123 2.69	84.9	##[1]
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	2830 2810 0.450	85.1 82.3 3.36	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGB2273

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2273-DUP1# Samp QC RPD %	BGB2273-DUP2# Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	<0.10 <0.10 [NA]	8.59 8.30 3.36	111	117

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGB2312

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2312-DUP1# Samp QC RPD %	BGB2312-DUP2# Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	4.32 4.38 1.36	<0.050 <0.050 [NA]	115	124

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-057 | Inorganics - Nutrients (Water) | Batch BGB2321

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2321-DUP1# Samp QC RPD %	PGB0878-02 Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	0.00768 0.00748 [NA]	0.0417 0.0412 1.32	102	100
Nitrate as N	mg/L	0.0050	<0.0050	0.00746 0.00574 [NA]	0.153 0.145 5.15	109	116
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0636 0.0648 1.88	106	106
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	0.00764 0.00648 [NA]	0.216 0.210 3.03	109	116
Phosphate as P	mg/L	0.0050	<0.0050	0.0152 0.0141 [NA]	0.0295 0.0285 3.30	104	97.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGB2907

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2907-DUP1# Samp QC RPD %	PGB0878-01 Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	4.14 4.26 3.05	0.647 0.616 4.93	102	96.6

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGB0878

INORG-021 | Inorganics - Common Wastewater Parameters (Water) | Batch BGB2136

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGB2136-DUP1# Samp QC RPD %	BGB2136-DUP2# Samp QC RPD %		BGB2136-MS1#
MBAS	mg/L	0.10	<0.10	0.440 0.420 [NA]	0.650 0.570 13.1	92.0	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGC0301

Analyte	Units	PQL	Blank	LCS %
BOD	mg/L	5.0	<5.0	91.6

MICRO-001B | Microbiological Suite (Water) | Batch BGB2350

Analyte	Units	PQL	Blank	LCS %
Thermotolerant Coliforms	cfu/100mL	1	<1	[NA]
E.coli	cfu/100mL	1	<1	[NA]

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Surrogate recovery is outside routine acceptance criteria (60-140%) as a result of the high concentration of analyte(s) in the sample.
[4]	PQL has been raised due to matrix requiring dilution
[5]	Note: There was insufficient sample to perform all QC according to our internal guidelines.
[6]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.



Certificate of Analysis PGE0566

Client Details

Client Process Minerals International Pty Ltd (PMI)
Contact [REDACTED]
Address 20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference Mount Marion MTM Groundwater - Quarterly
Number of Samples 10 Water
Date Samples Received 08/05/2025
Date Instructions Received 08/05/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

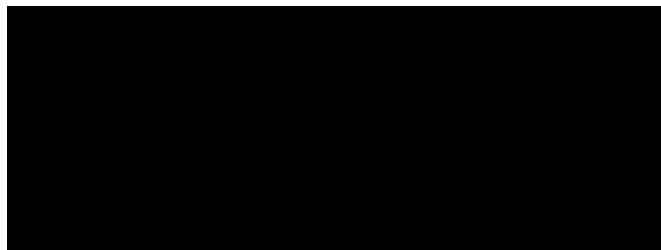
Date Final Results Expected 09/06/2025
Date of Reissue 18/06/2025 - This report supercedes previous report, see amendment history for details

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Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By



Laboratory Manager

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Report Amendment History

Revision	Reason for Amendment
R-01	Radiological results added.

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Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PGE0566-01	MTM-MB21WRD01B	Water	07/05/2025	08/05/2025
PGE0566-02	MTM-MB19MMC02A	Water	07/05/2025	08/05/2025
PGE0566-03	MTM-MB19MMC03	Water	07/05/2025	08/05/2025
PGE0566-04	MTM-MB21WRD04B	Water	07/05/2025	08/05/2025
PGE0566-05	MTM-PB06	Water	07/05/2025	08/05/2025
PGE0566-06	MTM-PB10	Water	07/05/2025	08/05/2025
PGE0566-07	MTM-PB12	Water	07/05/2025	08/05/2025
PGE0566-08	MTM-WWTP-Stage2	Water	07/05/2025	08/05/2025
PGE0566-09	MTM-WWTP-Stage3	Water	07/05/2025	08/05/2025
PGE0566-10	Duplicate	Water	07/05/2025	08/05/2025

Sample Comments

MTM-MB21WRD04B Sample ID confirmed by email communication.

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Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGE0566-01	PGE0566-02	PGE0566-03	PGE0566-04	PGE0566-08
Your Reference			MTM-MB21WRD 01B	MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 04B	MTM-WWTP-Sta ge2
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Phosphorus	mg/L	0.050	0.11	0.26	0.061	<0.25 [3]	6.5

Envirolab ID	Units	PQL	PGE0566-09	PGE0566-10
Your Reference			MTM-WWTP-Sta ge3	Duplicate
Date Sampled			07/05/2025	07/05/2025
Phosphorus	mg/L	0.050	4.3	0.26

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Dissolved Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGE0566-01 MTM-MB21WRD 01B	PGE0566-02 MTM-MB19MMC 02A	PGE0566-03 MTM-MB19MMC 03	PGE0566-04 MTM-MB21WRD 04B	PGE0566-10 Duplicate
			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Silicon	mg/L	0.10	21	24	26	18	24
Silica*	mg/L	0.20	45	51	56	39	50

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGE0566-01 MTM-MB21WRD 01B 07/05/2025	PGE0566-02 MTM-MB19MMC 02A 07/05/2025	PGE0566-03 MTM-MB19MMC 03 07/05/2025	PGE0566-04 MTM-MB21WRD 04B 07/05/2025	PGE0566-05 MTM-PB06 07/05/2025
Aluminium	mg/L	0.010	0.018	<0.010	<0.010	<0.050 [4]	[NA]
Arsenic	mg/L	0.0010	0.015	0.11	0.040	<0.0050 [4]	[NA]
Boron	mg/L	0.020	1.9	6.4	4.2	11	[NA]
Barium	mg/L	0.0010	0.31	0.54	1.6	0.074	[NA]
Beryllium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.0025 [4]	[NA]
Cadmium	mg/L	0.00010	0.00018	<0.00010	0.00020	<0.00050 [4]	[NA]
Cobalt	mg/L	0.0010	0.0085	0.026	0.18	0.027	[NA]
Chromium	mg/L	0.0010	<0.0010	0.0012	0.0093	<0.0050 [4]	[NA]
Copper	mg/L	0.0010	0.017	<0.0010	0.012	<0.0050 [4]	[NA]
Iron	mg/L	0.010	<0.010	18	0.25	0.051	[NA]
Mercury	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	[NA]
Lithium	mg/L	0.0010	2.1	2.8	0.94	1.3	[NA]
Manganese	mg/L	0.0010	0.42	13	19	3.8	[NA]
Molybdenum	mg/L	0.0010	0.028	0.049	0.014	0.0067	[NA]
Nickel	mg/L	0.0010	0.039	0.11	0.35	0.12	[NA]
Lead	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0050 [4]	[NA]
Rubidium*	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	0.15
Selenium	mg/L	0.0010	0.027	0.0059	0.0094	<0.0050 [4]	[NA]
Strontium	mg/L	0.0010	3.4	9.3	19	0.69	[NA]
Thorium	mg/L	0.00050	[NA]	[NA]	[NA]	[NA]	0.00057
Titanium	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0050 [4]	[NA]
Uranium	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	0.11
Vanadium	mg/L	0.0010	0.047	0.0028	0.033	<0.0050 [4]	[NA]
Zinc	mg/L	0.0010	0.15	0.060	0.10	0.0086	[NA]

Envirolab ID Your Reference Date Sampled	Units	PQL	PGE0566-06 MTM-PB10 07/05/2025	PGE0566-07 MTM-PB12 07/05/2025	PGE0566-10 Duplicate 07/05/2025
Aluminium	mg/L	0.010	[NA]	[NA]	<0.020 [4]
Arsenic	mg/L	0.0010	[NA]	[NA]	0.012
Boron	mg/L	0.020	[NA]	[NA]	8.1
Barium	mg/L	0.0010	[NA]	[NA]	0.049
Beryllium	mg/L	0.00050	[NA]	[NA]	<0.0010 [4]
Cadmium	mg/L	0.00010	[NA]	[NA]	<0.00020 [4]
Cobalt	mg/L	0.0010	[NA]	[NA]	0.0033
Chromium	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Copper	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Iron	mg/L	0.010	[NA]	[NA]	1.2
Mercury	mg/L	0.000050	[NA]	[NA]	<0.000050
Lithium	mg/L	0.0010	[NA]	[NA]	2.9
Manganese	mg/L	0.0010	[NA]	[NA]	1.4
Molybdenum	mg/L	0.0010	[NA]	[NA]	0.0047
Nickel	mg/L	0.0010	[NA]	[NA]	0.014
Lead	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Rubidium*	mg/L	0.0010	1.4	0.091	[NA]
Selenium	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]

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Dissolved Low Level Metals (Water)

Envirolab ID	Units	PQL	PGE0566-06	PGE0566-07	PGE0566-10
Your Reference			MTM-PB10	MTM-PB12	Duplicate
Date Sampled			07/05/2025	07/05/2025	07/05/2025
Strontium	mg/L	0.0010	[NA]	[NA]	1.1
Thorium	mg/L	0.00050	0.0012	<0.00050	[NA]
Titanium	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Uranium	mg/L	0.0010	0.060	0.0055	[NA]
Vanadium	mg/L	0.0010	[NA]	[NA]	<0.0020 [4]
Zinc	mg/L	0.0010	[NA]	[NA]	0.010

Certificate of Analysis PGE0566

Inorganics - Physical Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGE0566-01 MTM-MB21WRD 01B	PGE0566-02 MTM-MB19MMC 02A	PGE0566-03 MTM-MB19MMC 03	PGE0566-04 MTM-MB21WRD 04B	PGE0566-08 MTM-WWTP-Station ge2
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
pH	pH units		7.8	7.5	7.4	7.6	7.9
pH (True Colour)	pH units		7.6	7.1	7.2	7.3	[NA]
Electrical Conductivity	µS/cm	2.0	4600	34000	22000	33000	[NA]
Total Dissolved Solids	mg/L	5.0	2800	24000	14000	24000	[NA]
Total Suspended Solids	mg/L	5.0	99	310	20	<5.0	<5.0
Turbidity	NTU	0.10	100 [7]	2.5	39	1.2	[NA]
Turbidity (filtered)*	NTU	0.10	0.35	0.25	0.35	0.20	[NA]
Colour (True)	PCU	5.0	<5.0	36	13	<5.0	[NA]

Envirolab ID Your Reference	Units	PQL	PGE0566-09 MTM-WWTP-Station ge3	PGE0566-10 Duplicate
Date Sampled			07/05/2025	07/05/2025
pH	pH units		8.0	7.5
pH (True Colour)	pH units		[NA]	7.2
Electrical Conductivity	µS/cm	2.0	[NA]	33000
Total Dissolved Solids	mg/L	5.0	[NA]	24000
Total Suspended Solids	mg/L	5.0	18	340
Turbidity	NTU	0.10	[NA]	200 [7]
Turbidity (filtered)*	NTU	0.10	[NA]	0.20
Colour (True)	PCU	5.0	[NA]	20

Certificate of Analysis PGE0566

Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference	Units	PQL	PGE0566-01 MTM-MB21WRD 01B	PGE0566-02 MTM-MB19MMC 02A	PGE0566-03 MTM-MB19MMC 03	PGE0566-04 MTM-MB21WRD 04B	PGE0566-10 Duplicate
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	520	910	940	920	910
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	520	910	940	920	910
Chloride	mg/L	1.0	930	11000	6900	11000	11000
Sulfate	mg/L	1.0	380	3500	2000	3100	3700
Calcium	mg/L	0.50	77	75	240	79	74
Magnesium	mg/L	0.50	160	1100	920	1100	1100
Potassium	mg/L	0.50	15	120	48	140	120
Sodium	mg/L	0.50	620	6800	3600	6800	6800
Hardness (calc) equivalent CaCO3	mg/L	3.0	860	4900	4400	4600	4800
Ionic Balance	%		-0.70	-0.90	-2.0	-0.14	-1.4

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Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGE0566-01	PGE0566-02	PGE0566-03	PGE0566-04	PGE0566-10
Your Reference			MTM-MB21WRD 01B	MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 04B	Duplicate
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Fluoride	mg/L	0.10	0.62	0.14	0.87	0.13	0.12

Certificate of Analysis PGE0566

Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGE0566-01	PGE0566-02	PGE0566-03	PGE0566-04	PGE0566-10
Your Reference			MTM-MB21WRD 01B	MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 04B	Duplicate
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Ferrous Iron	mg/L	0.050	<0.050	1.8	<0.050	<0.050	11

Certificate of Analysis PGE0566

Inorganics - Nutrients (Water)

Envirolab ID Your Reference	Units	PQL	PGE0566-01 MTM-MB21WRD 01B	PGE0566-02 MTM-MB19MMC 02A	PGE0566-03 MTM-MB19MMC 03	PGE0566-04 MTM-MB21WRD 04B	PGE0566-08 MTM-WWTP-Station ge2
Date Sampled			07/05/2025	07/05/2025	07/05/2025	07/05/2025	07/05/2025
Ammonia as N	mg/L	0.0050	<0.0050	0.16	0.0056	0.079	[NA]
Nitrate as N	mg/L	0.0050	9.7	<0.0050	0.028	<0.0050	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	43	<0.020	0.13	<0.020	[NA]
Nitrite as N	mg/L	0.0050	0.15	<0.0050	0.033	<0.0050	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	0.50	<0.020	0.11	<0.020	[NA]
NOx as N	mg/L	0.0050	9.9	<0.0050	0.061	<0.0050	[NA]
TKN as N by calculation	mg/L	0.10	3.3	0.66	0.26	0.33	[NA]
Total Nitrogen	mg/L	0.10	13	0.66	0.32	0.33	17
Phosphate as P	mg/L	0.0050	0.037	0.0088	0.018	0.052	[NA]

Envirolab ID Your Reference	Units	PQL	PGE0566-09 MTM-WWTP-Station ge3	PGE0566-10 Duplicate
Date Sampled			07/05/2025	07/05/2025
Ammonia as N	mg/L	0.0050	[NA]	0.15
Nitrate as N	mg/L	0.0050	[NA]	<0.0050
Nitrate as NO3 by calculation	mg/L	0.020	[NA]	<0.020
Nitrite as N	mg/L	0.0050	[NA]	<0.0050
Nitrite as NO2 by calculation	mg/L	0.020	[NA]	<0.020
NOx as N	mg/L	0.0050	[NA]	<0.0050
TKN as N by calculation	mg/L	0.10	[NA]	0.49
Total Nitrogen	mg/L	0.10	9.0	0.49
Phosphate as P	mg/L	0.0050	[NA]	0.0093

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Inorganics - Common Wastewater Parameters (Water)

Envirolab ID	Units	PQL	PGE0566-08	PGE0566-09
Your Reference			MTM-WWTP-Station ge2	MTM-WWTP-Station ge3
Date Sampled			07/05/2025	07/05/2025
BOD	mg/L	5.0	7.9	9.0

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Microbiological Suite (Water)

Envirolab ID	Units	PQL	PGE0566-08	PGE0566-09
Your Reference			MTM-WWTP-Station ge2	MTM-WWTP-Station ge3
Date Sampled			07/05/2025	07/05/2025
Thermotolerant Coliforms	cfu/100mL	1	<10	11000
E.coli	cfu/100mL	1	<10	11000

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Subcontracted Radiological - Certificate: ME372576 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGE0566-05	PGE0566-06	PGE0566-07
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			07/05/2025	07/05/2025	07/05/2025
Gross alpha	Bq/L		23.3	1.52	0.759
Gross beta	Bq/L		27.8	0.766	0.324
Lead-210	Bq/L		1.3	<0.18	<0.12
Radium 226	Bq/L		12.6	0.713	0.045
Radium 228	Bq/L		19	0.399	<0.08

Certificate of Analysis PGE0566

Subcontracted Radiological - Potassium 40 - Certificate: ME372576 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGE0566-05	PGE0566-06	PGE0566-07
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			07/05/2025	07/05/2025	07/05/2025
Potassium-40	Bq/L		8.2	7.3	0.76

Certificate of Analysis PGE0566

Result Comments

Identifier	Description
[3]	PQL(s) has/have been raised due to the high concentration of analyte(s) in the sample, resulting in the sample requiring a dilution.
[4]	PQL has been raised due to matrix requiring dilution
[7]	cloudy with precipitate

Certificate of Analysis PGE0566

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG 026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-091	BOD and/or cBOD - Analysed in accordance with APHA latest edition 5210 D.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
MICRO-001B	E. coli/Thermotolerant coliforms: Microbial Water Analysis - in accordance with MICRO-001 (AS4276.5-latest edition). Recommended maximums based on NHMRC Australian Drinking Water Guidelines. Please note that results for this test derived from counts outside of the range 10-80 are considered approximate as per AS4276.1.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGE0566

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGE0566

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGE0566

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	Mount Marion MTM Groundwater - Quarterly
Date Issued	18/06/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGE0566

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Total Phosphorus Water	1, 3, 8-9	07/05/2025	13/05/2025	14/05/2025	Yes
	2, 4, 10	07/05/2025	13/05/2025	15/05/2025	Yes
Dissolved Metals Water	1, 3	07/05/2025	12/05/2025	13/05/2025	Yes
	2, 4, 10	07/05/2025	12/05/2025	14/05/2025	Yes
Dissolved Metals (LL) Water	1-3	07/05/2025	12/05/2025	14/05/2025	Yes
	4, 10	07/05/2025	12/05/2025	15/05/2025	Yes
	5	07/05/2025	22/05/2025	23/05/2025	Yes
	6-7	07/05/2025	22/05/2025	26/05/2025	Yes
Dissolved Metals (LL)-Hg Water	1-4, 10	07/05/2025	13/05/2025	13/05/2025	Yes
Colour-True Water	1-4, 10	07/05/2025	12/05/2025	13/05/2025	Yes
EC Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
pH Water	1-4, 8-10	07/05/2025	12/05/2025	12/05/2025	No
pH (True Colour) Water	1-4, 10	07/05/2025	12/05/2025	13/05/2025	No
TDS Water	1-4, 10	07/05/2025	15/05/2025	15/05/2025	No
TSS Water	1-4, 8-10	07/05/2025	15/05/2025	15/05/2025	No
Turbidity Water	1-4, 10	07/05/2025	15/05/2025	15/05/2025	No
Turbidity (filtered) Water	1-4, 10	07/05/2025	13/05/2025	13/05/2025	No
Alkalinity Suite Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Chloride Water	1-4, 10	07/05/2025	09/05/2025	12/05/2025	Yes
Dissolved Cations Water	1, 3	07/05/2025	12/05/2025	13/05/2025	Yes
	2, 4, 10	07/05/2025	12/05/2025	14/05/2025	Yes
Ion Balance Water	1-4, 10	07/05/2025	13/05/2025	23/05/2025	Yes
Sulfate Water	1-4, 10	07/05/2025	09/05/2025	12/05/2025	Yes
Fluoride Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Ferrous Iron Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Nitrogen - Ammonia Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Nitrogen - Nitrate Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	Yes
Nitrogen - Nitrite Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	No
Nitrogen - NOx Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	No
Nitrogen - Total N Water	1-4, 8	07/05/2025	16/05/2025	16/05/2025	Yes
	9-10	07/05/2025	16/05/2025	17/05/2025	Yes
Phosphate as P Water	1-4, 10	07/05/2025	12/05/2025	12/05/2025	No
TKN as N calc Water	1-4, 10	07/05/2025	13/05/2025	23/05/2025	Yes
BOD Water	8-9	07/05/2025	20/05/2025	26/05/2025	Yes
E. coli & T.T.coli Water	8-9	07/05/2025	08/05/2025	08/05/2025	Yes
Gross alpha & beta Water	5-7	07/05/2025	15/05/2025	28/05/2025	Yes
Lead 210 Water	5-7	07/05/2025	30/05/2025	13/06/2025	Yes
Radium 226 & 228 Water	5-7	07/05/2025	30/05/2025	13/06/2025	Yes
GROSS_ALPHA_BETA_SGS Water	5-7	07/05/2025	28/05/2025	28/05/2025	Yes

Data Quality Assessment Summary PGE0566

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
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Outliers: Matrix Spike

INORG-055 | Inorganics - Nutrients (Water) | Batch BGE1756

Sample ID	Analyte	% Limits	% Recovery
BGE1756-MS2#	Nitrite as N	70 - 130	##[2]

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGE1795

Sample ID	Analyte	% Limits	% Recovery
PGE0566-02	Ferrous Iron	70 - 130	##[2]

METALS-020 | Acid Extractable Metals (Water) | Batch BGE2039

Sample ID	Analyte	% Limits	% Recovery
BGE2039-MS1#	Phosphorus	70 - 130	##[2]

METALS-020 | Dissolved Metals (Water) | Batch BGE1939

Sample ID	Analyte	% Limits	% Recovery
BGE1939-MS1#	Silicon	70 - 130	##[2]

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1939

Sample ID	Analyte	% Limits	% Recovery
BGE1939-MS1#	Sodium	70 - 130	##[1]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE1937

Sample ID	Analyte	% Limits	% Recovery
BGE1937-MS1#	Strontium	70 - 130	##[1]

Outliers: QC Frequency

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGE3257

Analysis	QC Type	Expected	Reported
BOD	Duplicate	2	0

Quality Control PGE0566

METALS-020 | Acid Extractable Metals (Water) | Batch BGE2039

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE2039-DUP1# Samp QC RPD %	BGE2039-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	53.6 43.2 21.4	<0.050 <0.050 [NA]	110	##[2]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGE1939

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1939-DUP1# Samp QC RPD %	PGE0566-03 Samp QC RPD %		
Silicon	mg/L	0.10	<0.10	3.34 3.35 0.323	26.3 26.3 0.125	99.7	##[2]
Silica	mg/L	0.20	<0.20	7.15 7.17 0.323	56.3 56.4 0.125	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE1937

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1937-DUP1# Samp QC RPD %	PGE0566-03 Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	96.4	91.5
Arsenic	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0404 0.0390 3.42	100	100
Barium	mg/L	0.0010	<0.0010	0.00808 0.00816 0.960	1.63 1.66 1.88	104	104
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	102	107
Boron	mg/L	0.020	<0.020	0.0684 0.0691 [NA]	4.16 4.19 0.719	86.4	103
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	0.000200 0.000200 [NA]	103	103
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00934 0.00874 6.64	100	98.3
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.176 0.173 2.08	100	97.4
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0116 0.0115 0.605	101	93.5
Iron	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	0.250 0.252 0.790	98.5	99.9
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	99.4	96.5
Lithium	mg/L	0.0010	<0.0010	0.00331 0.00324 [NA]	0.940 0.940 0.00	106	107
Manganese	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	19.0 18.7 1.90	98.1	94.8
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0143 0.0143 0.0699	99.8	111
Nickel	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.347 0.339 2.24	99.7	92.1
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00935 0.00900 3.81	103	104
Strontium	mg/L	0.0010	<0.0010	1.52 1.56 2.56	19.2 18.5 3.52	97.6	##[1]
Titanium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	92.7	97.8
Vanadium	mg/L	0.0010	<0.0010	0.00581 0.00601 3.38	0.0327 0.0315 3.93	103	102
Zinc	mg/L	0.0010	<0.0010	0.00144 0.00151 [NA]	0.101 0.101 0.762	102	91.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGE2032

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE2032-DUP1# Samp QC RPD %	PGE0566-03 Samp QC RPD %		
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	99.6	86.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE3968

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGE0566-05 Samp QC RPD %	BGE3968-DUP2# Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.145 0.145 0.00828	0.00476 0.00492 [NA]	95.9	98.8
Thorium	mg/L	0.00050	<0.00050	0.000573 <0.00050 [NA]	<0.0010 <0.0010 [NA]	98.0	91.0
Uranium	mg/L	0.0010	<0.0010	0.114 0.113 0.837	0.0158 0.0157 1.02	103	101

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0566

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGE3969

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGE0566-06 Samp QC RPD %	BGE3969-DUP2# Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	1.38 1.28 7.57	0.00985 0.00977 0.846	103	84.4
Thorium	mg/L	0.00050	0.00050	0.00121 <0.00050 [NA] [6]	0.00050 0.00050 [NA]	93.5	87.4
Uranium	mg/L	0.0010	<0.0010	0.0602 0.0530 12.6	<0.0010 <0.0010 [NA]	99.9	85.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGE1756

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE1756-DUP1# Samp QC RPD %	BGE1756-DUP2# Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	101
Analyte	Units	PQL	Blank			LCS %
Colour (True)	PCU	5.0	<5.0			[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGE1781

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566-01 Samp QC RPD %	BGE1781-DUP2# Samp QC RPD %	
pH	pH units		5.5	7.8 7.8 0.515	7.2 7.2 0.279	103
Electrical Conductivity	µS/cm	2.0	2.00	4610 4590 0.478	860 861 0.174	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGE1962

Analyte	Units	PQL	Blank	DUP1	LCS %
				PGE0566-01 Samp QC RPD %	
pH (True Colour)	pH units			7.6 7.6 0.00	102

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGE2083

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE2083-DUP1# Samp QC RPD %	PGE0566-01 Samp QC RPD %	
Turbidity (filtered)	NTU	0.10	<0.10	0.200 0.200 [NA]	0.350 0.350 [NA]	90.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGE2479

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE2479 DUP1# Samp QC RPD %	BGE2479 DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	5.0	24.0 26.0 8.00	5.0 5.0 [NA]	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGE2480

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE2480-DUP1# Samp QC RPD %	BGE2480-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	3760 3760 0.00	<5.0 <5.0 [NA]	114

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0566

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGE2481

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566-04 Samp QC RPD %	BGE2481-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	23800 23300 2.21	3820 3950 3.35	114

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGE2482

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE2482-DUP1# Samp QC RPD %	BGE2482-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	2560 2740 6.91	667 660 1.06	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGE2483

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566-04 Samp QC RPD %	BGE2483-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	INS INS [NA] [5]	INS INS [NA] [5]	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGE2591

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566-01 Samp QC RPD %	BGE2591-DUP2# Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	101 99.8 1.20	0.650 0.700 7.41	100

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1736

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike % PGE0566-02
				PGE0566-01 Samp QC RPD %	BGE1736-DUP2# Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	928 997 7.23	340 345 1.31	87.2	80.8
Sulfate	mg/L	1.0	<1.0	383 418 8.75	<1.0 <1.0 [NA]	84.4	108

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1781

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGE0566 01 Samp QC RPD %	BGE1781 DUP2# Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	5.0	519 560 7.51	243 234 3.91	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	519 560 7.51	243 234 3.91	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGE1939

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike % BGE1939-MS1#
				BGE1939-DUP1# Samp QC RPD %	PGE0566-03 Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	97.7 97.6 0.0533	237 235 1.16	81.5	83.5
Magnesium	mg/L	0.50	<0.50	28.6 28.9 1.30	916 906 1.14	85.3	98.2
Potassium	mg/L	0.50	<0.50	1.50 1.51 [NA]	47.9 48.6 1.40	83.9	87.8
Sodium	mg/L	0.50	0.50	114 115 0.270	3590 3560 0.868	81.8	##[1]
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	361 363 0.389	4370 4320 1.14	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGE0566

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGE1791

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1791-DUP1# Samp QC RPD %	BGE1791-DUP2# Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	3.42 3.53 3.16	0.795 0.845 6.10	102	104

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGE1795

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGE0566-01 Samp QC RPD %	BGE1795-DUP2# Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	<0.050 <0.050 [NA]	0.673 0.678 0.737	117	##[2]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-057 | Inorganics - Nutrients (Water) | Batch BGE1756

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE1756-DUP1# Samp QC RPD %	BGE1756-DUP2# Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	99.7	98.6
Nitrate as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	4.30 4.32 0.433	87.3	116
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	114	##[2]
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	4.30 4.32 0.442	87.3	114
Phosphate as P	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0181 0.0176 [NA]	111	123

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGE2727

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGE2727-DUP1# Samp QC RPD %	PGE0566-08 Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	444 454 2.07	17.5 17.3 1.17	118	96.7

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

MICRO-001B | Microbiological Suite (Water) | Batch BGE1538

Analyte	Units	PQL	Blank	LCS %			
Thermotolerant Coliforms	cfu/100mL	1	<1				[NA]
E.coli	cfu/100mL	1	<1				[NA]


QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[5]	Note: There was insufficient sample to perform all QC according to our internal guidelines.
[6]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.



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Client Details

Client Process Minerals International Pty Ltd (PMI)
Contact 
Address 20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference MTM Groundwater - Quarterly
Number of Samples 10 Water
Date Samples Received 14/08/2025
Date Instructions Received 14/08/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

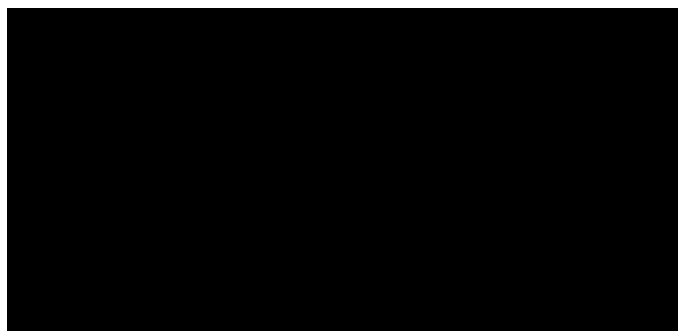
Date Final Results Expected 17/10/2025
Date of Reissue 15/10/2025 - This report supercedes previous report, see amendment history for details

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Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By



Laboratory Manager

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Report Amendment History

Revision	Reason for Amendment
R-01	Radionuclide results added.

Certificate of Analysis PGH0886

Samples in this Report

Envirolab ID	Sample ID	Description	Matrix	Date Sampled	Date Received
PGH0886-01	MTM-WWTP-Stage2	WWTP UNIT 1	Water	13/08/2025	14/08/2025
PGH0886-02	MTM-WWTP-Stage3	WWTP UNIT 2	Water	13/08/2025	14/08/2025
PGH0886-03	MTM-PB06		Water	13/08/2025	14/08/2025
PGH0886-04	MTM-PB10		Water	13/08/2025	14/08/2025
PGH0886-05	MTM-PB12		Water	13/08/2025	14/08/2025
PGH0886-06	MTM-MB19MMC02A		Water	13/08/2025	14/08/2025
PGH0886-07	MTM-MB19MMC03		Water	13/08/2025	14/08/2025
PGH0886-08	MTM-MB21WRD02B		Water	13/08/2025	14/08/2025
PGH0886-09	MTM-PRW-AMG OWS		Water	13/08/2025	14/08/2025
PGH0886-10	Duplicate		Water	13/08/2025	14/08/2025

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Volatile TRH and BTEX (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-09 MTM-PRW-AMG OWS 13/08/2025
Date Sampled			
TRH C6-C9	µg/L	10	<100 [2]
TRH C6-C10	µg/L	10	<100 [2]
TRH C6-C10 less BTEX (F1)	µg/L	10	<100
Methyl tert butyl ether (MTBE)	µg/L	1.0	<10 [2]
Benzene	µg/L	1.0	<10 [2]
Toluene	µg/L	1.0	<10 [2]
Ethylbenzene	µg/L	1.0	<10 [2]
meta+para Xylene	µg/L	2.0	<20 [2]
ortho-Xylene	µg/L	1.0	<10 [2]
Total +ve Xylenes	µg/L	1.0	<10
Naphthalene (value used in F2 calc)	µg/L	1.0	<10 [2]
Total +ve BTEX	µg/L	1.0	<10
<i>Surrogate Dibromofluoromethane</i>	%		<i>103</i>
<i>Surrogate Toluene-D8</i>	%		<i>96.5</i>
<i>Surrogate 4-Bromofluorobenzene</i>	%		<i>103</i>

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Semi-volatile TRH (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-09 MTM-PRW-AMG OWS 13/08/2025
Date Sampled			
TRH C10-C14	µg/L	50	520
TRH C15-C28	µg/L	100	1100
TRH C29-C36	µg/L	100	520
Total +ve TRH C10-C36	µg/L	50	2100
TRH >C10-C16	µg/L	50	270
TRH >C10-C16 less Naphthalene F2	µg/L	50	270
TRH >C16-C34 (F3)	µg/L	100	1400
TRH >C34-C40 (F4)	µg/L	100	270
Total +ve TRH >C10-C40	µg/L	50	1900
<i>Surrogate o-Terphenyl</i>	%		<i>94.1</i>

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Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGH0886-01	PGH0886-02	PGH0886-06	PGH0886-07	PGH0886-08
Your Reference			MTM-WWTP-Station 2 WWTP UNIT 1	MTM-WWTP-Station 3 WWTP UNIT 2	MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 02B
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025	13/08/2025
Phosphorus	mg/L	0.050	7.7	8.9	0.12	0.068	0.052

Envirolab ID	Units	PQL	PGH0886-10
Your Reference			Duplicate
Date Sampled			13/08/2025
Phosphorus	mg/L	0.050	0.055

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Dissolved Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03	PGH0886-08 MTM-MB21WRD 02B	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025
Silicon	mg/L	0.10	24	29	12	13
Silica*	mg/L	0.20	50	62	27	28

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-03 MTM-PB06	PGH0886-04 MTM-PB10	PGH0886-05 MTM-PB12	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025	13/08/2025
Aluminium	mg/L	0.010	[NA]	[NA]	[NA]	<0.010	<0.010
Arsenic	mg/L	0.0010	[NA]	[NA]	[NA]	0.018	0.0048
Boron	mg/L	0.020	[NA]	[NA]	[NA]	6.9	4.7
Barium	mg/L	0.0010	[NA]	[NA]	[NA]	0.046	0.13
Beryllium	mg/L	0.00050	[NA]	[NA]	[NA]	<0.00050	<0.00050
Cadmium	mg/L	0.00010	[NA]	[NA]	[NA]	<0.00010	<0.00010
Cobalt	mg/L	0.0010	[NA]	[NA]	[NA]	0.012	0.020
Chromium	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	0.0010
Copper	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	0.0025
Iron	mg/L	0.010	[NA]	[NA]	[NA]	0.026	0.017
Mercury	mg/L	0.000050	[NA]	[NA]	[NA]	<0.000050	<0.000050
Lithium	mg/L	0.0010	[NA]	[NA]	[NA]	2.4	0.79
Manganese	mg/L	0.0010	[NA]	[NA]	[NA]	1.1	1.8
Molybdenum	mg/L	0.0010	[NA]	[NA]	[NA]	0.0073	0.0018
Nickel	mg/L	0.0010	[NA]	[NA]	[NA]	0.092	0.043
Lead	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	<0.0010
Rubidium*	mg/L	0.0010	0.16	1.3	0.094	[NA]	[NA]
Selenium	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	0.0010
Strontium	mg/L	0.0010	[NA]	[NA]	[NA]	1.0	2.2
Thorium	mg/L	0.00050	0.0012	0.00057	<0.00050	[NA]	[NA]
Titanium	mg/L	0.0010	[NA]	[NA]	[NA]	<0.0010	<0.0010
Uranium	mg/L	0.0010	0.10	0.058	0.0071	[NA]	[NA]
Vanadium	mg/L	0.0010	[NA]	[NA]	[NA]	0.0093	0.011
Zinc	mg/L	0.0010	[NA]	[NA]	[NA]	0.012	0.017

Envirolab ID Your Reference	Units	PQL	PGH0886-08 MTM-MB21WRD 02B	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025
Aluminium	mg/L	0.010	<0.020 [3]	<0.020 [3]
Arsenic	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Boron	mg/L	0.020	11	11
Barium	mg/L	0.0010	0.071	0.062
Beryllium	mg/L	0.00050	<0.0010 [3]	<0.0010 [3]
Cadmium	mg/L	0.00010	<0.00020 [3]	<0.00020 [3]
Cobalt	mg/L	0.0010	0.055	0.46
Chromium	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Copper	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Iron	mg/L	0.010	44	36
Mercury	mg/L	0.000050	<0.000050	<0.000050
Lithium	mg/L	0.0010	1.0	1.0
Manganese	mg/L	0.0010	12	11
Molybdenum	mg/L	0.0010	0.0024	0.014
Nickel	mg/L	0.0010	0.024	0.17
Lead	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Rubidium*	mg/L	0.0010	[NA]	[NA]

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-08 MTM-MB21WRD 02B	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025
Selenium	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Strontium	mg/L	0.0010	6.1	5.9
Thorium	mg/L	0.00050	[NA]	[NA]
Titanium	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Uranium	mg/L	0.0010	[NA]	[NA]
Vanadium	mg/L	0.0010	<0.0020 [3]	<0.0020 [3]
Zinc	mg/L	0.0010	0.098	0.027

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Inorganics - Physical Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-01 MTM-WWTP-Station 2 ge2 WWTP UNIT 1	PGH0886-02 MTM-WWTP-Station 3 ge3 WWTP UNIT 2	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03	PGH0886-08 MTM-MB21WRD 02B
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025	13/08/2025
pH	pH units		7.8	7.6	7.7	7.4	6.7
pH (True Colour)	pH units		[NA]	[NA]	7.7	7.3	6.6
Electrical Conductivity	µS/cm	2.0	[NA]	[NA]	35000	23000	56000
Total Dissolved Solids	mg/L	5.0	[NA]	[NA]	24000	14000	44000
Total Suspended Solids	mg/L	5.0	<5.0	8.0	310	220	270
Turbidity	NTU	0.10	[NA]	[NA]	270 [7]	230 [7]	530 [6]
Turbidity (filtered)*	NTU	0.10	[NA]	[NA]	0.37	0.35	170 [7]
Colour (True)	PCU	5.0	[NA]	[NA]	<5.0	15	370

Envirolab ID Your Reference	Units	PQL	PGH0886-09 MTM-PRW-AMG OWS	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025
pH	pH units		7.8	6.8
pH (True Colour)	pH units		[NA]	6.6
Electrical Conductivity	µS/cm	2.0	7000	56000
Total Dissolved Solids	mg/L	5.0	[NA]	44000
Total Suspended Solids	mg/L	5.0	[NA]	220
Turbidity	NTU	0.10	[NA]	730 [6]
Turbidity (filtered)*	NTU	0.10	[NA]	140 [7]
Colour (True)	PCU	5.0	[NA]	320

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Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03	PGH0886-08 MTM-MB21WRD 02B	PGH0886-10 Duplicate
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	960	930	230	220
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	960	930	230	220
Chloride	mg/L	1.0	12000	7500	22000	22000
Sulfate	mg/L	1.0	3500	1900	3500	3500
Calcium	mg/L	0.50	74	240	270	260
Magnesium	mg/L	0.50	1100	930	1600	1600
Potassium	mg/L	0.50	120	55	250	250
Sodium	mg/L	0.50	6600	3600	11000	11000
Hardness (calc) equivalent CaCO3	mg/L	3.0	4600	4400	7100	7100
Ionic Balance	%		-6.0	-4.6	-4.3	-4.5

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Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGH0886-06	PGH0886-07	PGH0886-08	PGH0886-10
Your Reference			MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 02B	Duplicate
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025
Fluoride	mg/L	0.10	0.11	0.64	0.41	0.39

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Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGH0886-06	PGH0886-07	PGH0886-08	PGH0886-10
Your Reference			MTM-MB19MMC 02A	MTM-MB19MMC 03	MTM-MB21WRD 02B	Duplicate
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025
Ferrous Iron	mg/L	0.050	<0.050	<0.050	41	38

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Inorganics - Nutrients (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-01 MTM-WWTP-Station 2 WWTP UNIT 1	PGH0886-02 MTM-WWTP-Station 3 WWTP UNIT 2	PGH0886-06 MTM-MB19MMC 02A	PGH0886-07 MTM-MB19MMC 03	PGH0886-08 MTM-MB21WRD 02B
Date Sampled			13/08/2025	13/08/2025	13/08/2025	13/08/2025	13/08/2025
Ammonia as N	mg/L	0.0050	[NA]	[NA]	0.12	0.017	0.17
Nitrate as N	mg/L	0.0050	[NA]	[NA]	0.25	0.27	<0.050 [4]
Nitrate as NO3 by calculation	mg/L	0.020	[NA]	[NA]	1.1	1.2	<0.20 [4]
Nitrite as N	mg/L	0.0050	[NA]	[NA]	<0.0050	0.0097	<0.050 [4]
Nitrite as NO2 by calculation	mg/L	0.020	[NA]	[NA]	<0.020	0.032	<0.20 [4]
NOx as N	mg/L	0.0050	[NA]	[NA]	0.25	0.28	<0.050 [4]
TKN as N by calculation	mg/L	0.10	[NA]	[NA]	0.48	0.61	0.82
Total Nitrogen	mg/L	0.10	16	26	0.74	0.89	0.83
Phosphate as P	mg/L	0.0050	[NA]	[NA]	0.059	0.026	<0.050 [4]

Envirolab ID Your Reference	Units	PQL	PGH0886-10 Duplicate
Date Sampled			13/08/2025
Ammonia as N	mg/L	0.0050	0.20
Nitrate as N	mg/L	0.0050	<0.050 [4]
Nitrate as NO3 by calculation	mg/L	0.020	<0.20 [4]
Nitrite as N	mg/L	0.0050	<0.050 [4]
Nitrite as NO2 by calculation	mg/L	0.020	<0.20 [4]
NOx as N	mg/L	0.0050	<0.050 [4]
TKN as N by calculation	mg/L	0.10	1.2
Total Nitrogen	mg/L	0.10	1.2
Phosphate as P	mg/L	0.0050	<0.050 [4]

Certificate of Analysis PGH0886

Inorganics - Common Wastewater Parameters (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-01 MTM-WWTP-Station ge2 WWTP UNIT 1	PGH0886-02 MTM-WWTP-Station ge3 WWTP UNIT 2	PGH0886-09 MTM-PRW-AMG OWS
Date Sampled			13/08/2025	13/08/2025	13/08/2025
BOD	mg/L	5.0	7.9	6.8	[NA]
MBAS	mg/L	0.10	[NA]	[NA]	0.41

Certificate of Analysis PGH0886

Microbiological Suite (Water)

Envirolab ID Your Reference	Units	PQL	PGH0886-01 MTM-WWTP-Sta ge2 WWTP UNIT 1	PGH0886-02 MTM-WWTP-Sta ge3 WWTP UNIT 2
Date Sampled			13/08/2025	13/08/2025
Thermotolerant Coliforms	cfu/100mL	1	<10	<10
E.coli	cfu/100mL	1	<10	<10

Certificate of Analysis PGH0886

Subcontracted Radiological - Radium 226 and 228 - Certificate: ME384482 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGH0886-03	PGH0886-04	PGH0886-05
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			13/08/2025	13/08/2025	13/08/2025
Radium 226	Bq/L		11.6	0.864	<0.045
Radium 228	Bq/L		12.9	0.48	<0.15

Certificate of Analysis PGH0886

Subcontracted Radiological - Certificate: ME384482 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGH0886-03	PGH0886-04	PGH0886-05
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			13/08/2025	13/08/2025	13/08/2025
Gross alpha	Bq/L		11.6	1.98	0.516
Gross beta	Bq/L		17.7	0.914	0.087
Lead-210	Bq/L		1.31	<0.35	<0.2

Certificate of Analysis PGH0886

Subcontracted Radiological - Potassium 40 - Certificate: ME384482 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGH0886-03	PGH0886-04	PGH0886-05
Your Reference			MTM-PB06	MTM-PB10	MTM-PB12
Date Sampled			13/08/2025	13/08/2025	13/08/2025
Potassium-40	Bq/L		9.2	7.9	0.69

Certificate of Analysis PGH0886

Result Comments

Identifier	Description
[2]	PQL(s) has/have been raised as the sample(s) was/were foamy and therefore required dilution.
[3]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[4]	PQL(s) has/have been raised due to matrix interference.
[6]	Pale Brown Cloudy Solution
[7]	Pale Yellow Cloudy Solution

Certificate of Analysis PGH0886

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed. Blanks may yield EC readings >1µS/cm, this is likely due to adsorption of Carbon Dioxide while the blank sample is sat on the instrument autosampler prior to analysis. The values are generally insignificant (<5µS/cm) compared to most actual sample conductivities.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-021	Methylene Blue Active Substances - determined colorimetrically, based on APHA latest edition, Method 5540-C. Solid samples extracted with water.
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG-026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-091	BOD and/or cBOD - Analysed in accordance with APHA latest edition 5210 D.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
MICRO-001B	E. coli/Thermotolerant coliforms: Microbial Water Analysis - in accordance with MICRO-001 (AS4276.5-latest edition). Recommended maximums based on NHMRC Australian Drinking Water Guidelines. Please note that results for this test derived from counts outside of the range 10-80 are considered approximate as per AS4276.1.

Certificate of Analysis PGH0886

Method Summary

Method ID	Methodology Summary
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGH0886

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGH0886

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGH0886

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	MTM Groundwater - Quarterly
Date Issued	15/10/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	No	Duplicate Outliers Exist - See detailed list below
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGH0886

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Water	9	13/08/2025	15/08/2025	16/08/2025	Yes
sTRH Water	9	13/08/2025	15/08/2025	20/08/2025	Yes
Total Phosphorus Water	1-2, 6-8, 10	13/08/2025	18/08/2025	19/08/2025	Yes
Dissolved Metals Water	6-8, 10	13/08/2025	18/08/2025	20/08/2025	Yes
Dissolved Metals (LL) Water	3-5	13/08/2025	03/09/2025	05/09/2025	Yes
	6-8, 10	13/08/2025	18/08/2025	20/08/2025	Yes
Dissolved Metals (LL)-Hg Water	6-8, 10	13/08/2025	19/08/2025	20/08/2025	Yes
Colour-True Water	6-8, 10	13/08/2025	15/08/2025	15/08/2025	Yes
EC Water	6-10	13/08/2025	15/08/2025	15/08/2025	Yes
pH Water	1-2, 6-10	13/08/2025	15/08/2025	15/08/2025	No
pH (True Colour) Water	6-8, 10	13/08/2025	18/08/2025	19/08/2025	No
TDS Water	6-8, 10	13/08/2025	19/08/2025	19/08/2025	Yes
TSS Water	1-2	13/08/2025	19/08/2025	19/08/2025	Yes
	6-8, 10	13/08/2025	19/08/2025	20/08/2025	Yes
Turbidity Water	6-8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Turbidity (filtered) Water	6-8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Alkalinity Suite Water	6-8, 10	13/08/2025	15/08/2025	15/08/2025	Yes
Chloride Water	6-8, 10	13/08/2025	18/08/2025	19/08/2025	Yes
Dissolved Cations Water	6-8, 10	13/08/2025	18/08/2025	20/08/2025	Yes
Ion Balance Water	6-8, 10	13/08/2025	15/08/2025	22/08/2025	Yes
Sulfate Water	6-8, 10	13/08/2025	18/08/2025	19/08/2025	Yes
Fluoride Water	6-8, 10	13/08/2025	15/08/2025	15/08/2025	Yes
Ferrous Iron Water	6-8, 10	13/08/2025	19/08/2025	19/08/2025	Yes
Nitrogen - Ammonia Water	6-8, 10	13/08/2025	15/08/2025	15/08/2025	Yes
Nitrogen - Nitrate Water	6-7	13/08/2025	15/08/2025	15/08/2025	Yes
	8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Nitrogen - Nitrite Water	6-7	13/08/2025	15/08/2025	15/08/2025	Yes
	8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Nitrogen - NOx Water	6-7	13/08/2025	15/08/2025	15/08/2025	Yes
	8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
Nitrogen - Total N Water	1-2, 6-8, 10	13/08/2025	19/08/2025	20/08/2025	Yes
Phosphate as P Water	6-7	13/08/2025	15/08/2025	15/08/2025	Yes
	8, 10	13/08/2025	15/08/2025	18/08/2025	Yes
TKN as N calc Water	6-8, 10	13/08/2025	15/08/2025	22/08/2025	Yes
BOD Water	1-2	13/08/2025	01/09/2025	08/09/2025	Yes
MBAS Water	9	13/08/2025	15/08/2025	18/08/2025	Yes
E. coli & T.T.coli Water	1-2	13/08/2025	14/08/2025	14/08/2025	Yes
Radium 226 & 228 Water	3-5	13/08/2025	21/08/2025	15/10/2025	Yes

Data Quality Assessment Summary PGH0886

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Gross alpha & beta Water	3-5	13/08/2025	20/08/2025	03/09/2025	Yes
Lead 210 Water	3-5	13/08/2025	21/08/2025	15/10/2025	Yes
GROSS_ALPHA_BETA_SGS Water	3-5	13/08/2025	10/09/2025	15/10/2025	Yes

Outliers: Duplicates

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGH2826

Sample ID	Duplicate ID	Analyte	% Limits	RPD
PGH0886-08	DUP2	Iron	20.00	136

Outliers: Matrix Spike

INORG-060 | Inorganics - Nutrients (Water) | Batch BGH2407

Sample ID	Analyte	% Limits	% Recovery
BGH2407-MS1#	Phosphate as P	70 - 130	##[1]

Outliers: QC Frequency

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGI0200

Analysis	QC Type	Expected	Reported
BOD	Duplicate	1	0

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGH2556

Analysis	QC Type	Expected	Reported
VTRH&MBTEXN	Duplicate	2	0
	Matrix Spike	1	0

Quality Control PGH0886

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGH2556

Analyte	Units	PQL	Blank	LCS %
TRH C6-C9	µg/L	10	<10	100
TRH C6 C10	µg/L	10	10	105
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	[NA]
Benzene	µg/L	1.0	<1.0	99.5
Toluene	µg/L	1.0	<1.0	101
Ethylbenzene	µg/L	1.0	<1.0	98.8
meta+para Xylene	µg/L	2.0	<2.0	96.5
ortho-Xylene	µg/L	1.0	<1.0	98.5
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	[NA]
Surrogate Dibromofluoromethane	%		96.4	106
Surrogate Toluene-D8	%		102	112
Surrogate 4 Bromofluorobenzene	%		103	101

ORG-020 | Semi-volatile TRH (Water) | Batch BGH2625

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2625-DUP1# Samp QC RPD %	BGH2625-DUP2# Samp QC RPD %		
TRH C10-C14	µg/L	50	<50	<50 <50 [NA]	<50 <50 [NA]	82.8	82.6
TRH C15-C28	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	89.7	104
TRH C29-C36	µg/L	100	<100	<100 <100 [NA] [5]	<100 <100 [NA]	101	125
TRH >C10-C16	µg/L	50	<50	<50 <50 [NA]	<50 <50 [NA]	90.3	93.3
TRH >C16-C34 (F3)	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	90.5	107
TRH >C34-C40 (F4)	µg/L	100	<100	<100 <100 [NA] [5]	<100 <100 [NA]	87.9	111
Surrogate o-Terphenyl	%		95.3	92.5 / 79.7	86.1 / 80.0	78.5	90.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Water) | Batch BGH2832

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2832-DUP1# Samp QC RPD %	BGH2832-DUP2# Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	14.2 14.5 2.44	39.5 40.1 1.46	102	98.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGH2827

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2827-DUP1# Samp QC RPD %	PGH0886-08 Samp QC RPD %		
Silicon	mg/L	0.10	<0.10	5.04 5.03 0.268	12.4 12.2 1.86	101	117
Silica	mg/L	0.20	0.20	10.8 10.8 0.268	26.5 26.0 1.86	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0886

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGH2826

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2826-DUP1# Samp QC RPD %	PGH0886-08 Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.020 <0.020 [NA]	97.3	103
Arsenic	mg/L	0.0010	<0.0010	0.00207 0.00209 [NA]	<0.0020 <0.0020 [NA]	100	108
Barium	mg/L	0.0010	<0.0010	0.0684 0.0686 0.291	0.0709 0.0707 0.226	101	94.0
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.0010 <0.0010 [NA]	95.1	93.1
Boron	mg/L	0.020	<0.020	0.0489 0.0493 [NA]	11.2 11.2 0.672	91.1	82.9
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.00020 <0.00020 [NA]	105	102
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	99.5	105
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0549 0.0558 1.66	99.6	103
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	98.4	102
Iron	mg/L	0.010	<0.010	0.205 0.202 1.73	43.6 8.29 136	98.0	87.9
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	99.5	93.4
Lithium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	1.02 1.01 0.646	97.2	92.7
Manganese	mg/L	0.0010	<0.0010	0.0250 0.0253 1.22	11.7 12.0 2.09	98.1	100
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00236 0.00234 [NA]	98.9	101
Nickel	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0237 0.0238 0.590	98.9	102
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	105	111
Strontium	mg/L	0.0010	<0.0010	0.233 0.233 0.312	6.07 6.20 2.11	96.9	93.9
Titanium	mg/L	0.0010	<0.0010	0.00143 <0.0010 [NA] [5]	<0.0020 <0.0020 [NA]	99.1	104
Vanadium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0020 <0.0020 [NA]	98.8	106
Zinc	mg/L	0.0010	<0.0010	0.00754 0.00696 7.99	0.0977 0.0968 0.885	102	104

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGH2957

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2957-DUP1# Samp QC RPD %	BGH2957-DUP2# Samp QC RPD %		
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	102	71.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGI0710

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGI0710-DUP1# Samp QC RPD %	BGI0710-DUP2# Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.00291 0.00293 [NA]	<0.0010 <0.0010 [NA]	98.7	101
Thorium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	92.2	89.5
Uranium	mg/L	0.0010	<0.0010	0.00122 0.00123 [NA]	<0.0010 <0.0010 [NA]	99.1	98.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGH2407

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2407-DUP1# Samp QC RPD %	BGH2407-DUP2# Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	6.56 7.53 [NA]	<5.0 <5.0 [NA]	111
Analyte	Units	PQL	Blank	LCS %		
Colour (True)	PCU	5.0	<5.0	[NA]		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0886

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGH2447

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2447-DUP1# Samp QC RPD %	BGH2447-DUP2# Samp QC RPD %	
pH	pH units		6.0	6.9 7.1 2.00	7.4 7.4 0.00	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGH2448

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0886-06 Samp QC RPD %	PGH0886-10 Samp QC RPD %	
pH	pH units		5.9	7.7 7.8 0.129	6.8 6.8 0.148	102
Electrical Conductivity	µS/cm	2.0	<2.0	34800 34800 0.0672	56100 55900 0.302	102

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGH2520

Analyte	Units	PQL	Blank	DUP1	LCS %
				PGH0886-06 Samp QC RPD %	
Turbidity (filtered)	NTU	0.10	<0.10	0.370 0.400 [NA]	99.5

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGH2524

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2524-DUP1# Samp QC RPD %	BGH2524-DUP2# Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	0.290 0.280 [NA]	0.280 0.260 [NA]	99.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGH2525

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0886-08 Samp QC RPD %	BGH2525-DUP2# Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	528 515 2.49	<0.10 <0.10 [NA]	99.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGH2901

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2901-DUP1# Samp QC RPD %	BGH2901-DUP2# Samp QC RPD %	
pH (True Colour)	pH units			7.1 7.1 0.283	7.8 7.8 0.00	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGH2926

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGH2926-DUP1# Samp QC RPD %	BGH2926-DUP2# Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	<5.0 <5.0 [NA]	746 766 2.65	104

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGH2927

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGH0886-08 Samp QC RPD %	BGH2927-DUP2# Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	272 273 0.367	11.0 <10 [NA] [5]	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0886

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGH2959

Analyte	Units	PQL	Blank	DUP1		LCS %
				BGH2959-DUP1#	Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	20.0 27.5 [NA] [5]		92.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2448

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %
				PGH0886-06	Samp QC RPD %	PGH0886-10	Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	956 955 0.146		218 222 2.09		[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]		<5.0 <5.0 [NA]		[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]		<5.0 <5.0 [NA]		[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	956 955 0.146		218 222 2.09		95.4

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2827

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGH2827-DUP1#	Samp QC RPD %	PGH0886-08	Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	57.1 57.1 0.00526		274 271 1.16		102	79.8
Magnesium	mg/L	0.50	<0.50	10.4 10.3 0.406		1570 1550 1.41		115	97.6
Potassium	mg/L	0.50	<0.50	7.55 7.54 0.204		248 248 0.161		107	99.0
Sodium	mg/L	0.50	<0.50	76.2 75.4 1.16		11300 11100 1.66		119	80.9
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	185 185 0.0975		7140 7040 1.38		[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGH2872

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				PGH0886-06	Samp QC RPD %	BGH2872-DUP2#	Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	12100 12000 0.776		219 222 1.52		98.6	91.0
Sulfate	mg/L	1.0	<1.0	3520 3490 0.789		57.6 58.7 1.90		93.3	107

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGH2454

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGH2454-DUP1#	Samp QC RPD %	BGH2454-DUP2#	Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	<1.0 <1.0 [NA] [3]		0.249 0.250 [NA]		97.4	99.6[3]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGH2937

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				PGH0886-06	Samp QC RPD %	BGH2937-DUP2#	Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	<0.050 0.0510 [NA] [5]		<0.050 <0.050 [NA]		119	117

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGH0886

INORG-057 | Inorganics - Nutrients (Water) | Batch BGH2407

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2407-DUP1# Samp QC RPD %	BGH2407-DUP2# Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	114	103
Nitrate as N	mg/L	0.0050	0.0050	0.349 0.355 1.78	2.15 2.15 0.00	101	103
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	94.5	97.0
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	0.351 0.357 1.78	2.15 2.15 0.00	101	103
Phosphate as P	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0917 0.0920 0.327	113	##[1]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGH2908

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGH2908-DUP1# Samp QC RPD %	PGH0886-01 Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	65.1 66.0 1.44	15.7 15.5 0.985	105	91.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-021 | Inorganics - Common Wastewater Parameters (Water) | Batch BGH2459

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGH2459-DUP1# Samp QC RPD %		
MBAS	mg/L	0.10	<0.10	<0.10 <0.10 [NA]	96.0	93.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGI0200

Analyte	Units	PQL	Blank	LCS %
BOD	mg/L	5.0	<5.0	91.7

MICRO-001B | Microbiological Suite (Water) | Batch BGH2489

Analyte	Units	PQL	Blank	LCS %
Thermotolerant Coliforms	cfu/100mL	1	<1	[NA]
E.coli	cfu/100mL	1	<1	[NA]

QC Comments

Identifier	Description
[1]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[3]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[5]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.



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Client Details

Client Process Minerals International Pty Ltd (PMI)
Contact [REDACTED]
Address 20 Walters Drive, Osborne Park, WA, 6017

Sample Details

Your Reference MTM Annual Groundwater Analysis 2025
Number of Samples 11 Water
Date Samples Received 05/11/2025
Date Instructions Received 05/11/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

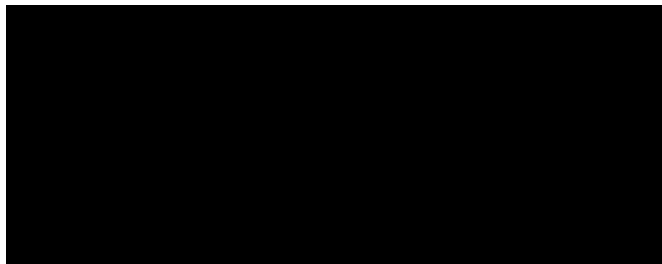
Date Final Results Expected 09/01/2026
Date of Reissue 05/12/2025 - This report supercedes previous report, see amendment history for details

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Authorisation Details

Results Approved By



Laboratory Manager

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Report Amendment History

Revision	Reason for Amendment
R-01	Subcon results entered.

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Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PGK0298-01	MB01	Water	04/11/2025	05/11/2025
PGK0298-02	MB05	Water	04/11/2025	05/11/2025
PGK0298-03	PB03	Water	04/11/2025	05/11/2025
PGK0298-04	PB05	Water	04/11/2025	05/11/2025
PGK0298-05	PB06	Water	04/11/2025	05/11/2025
PGK0298-06	PB09PBGCP02	Water	04/11/2025	05/11/2025
PGK0298-07	PB10	Water	04/11/2025	05/11/2025
PGK0298-08	PB11	Water	04/11/2025	05/11/2025
PGK0298-09	PB12	Water	04/11/2025	05/11/2025
PGK0298-10	MTM-WWTP-Stage2	Water	04/11/2025	05/11/2025
PGK0298-11	MTM-WWTP-Stage3	Water	04/11/2025	05/11/2025

Sample Comments

PB09PBGCP02 Labelled 'PB09'

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Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
Phosphorus	mg/L	0.050	<0.25 [4]	<0.25 [4]	<0.25 [4]	<0.25 [4]	<0.25 [4]

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09	PGK0298-10
Your Reference			PB09PBGCP02	PB10	PB11	PB12	MTM-WWTP-Stage2
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
Phosphorus	mg/L	0.050	<0.25 [4]	<0.25 [4]	<0.25 [4]	<0.050	6.8

Envirolab ID	Units	PQL	PGK0298-11
Your Reference			MTM-WWTP-Stage3
Date Sampled			04/11/2025
Phosphorus	mg/L	0.050	8.5

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Dissolved Metals (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025

Silicon	mg/L	0.10	24 [4]	16 [4]	29 [4]	28 [4]	31 [4]
Silica*	mg/L	0.20	51 [4]	34 [4]	60 [4]	60 [4]	67 [4]

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09
Your Reference			PB09PBGCP02	PB10	PB11	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025

Silicon	mg/L	0.10	8.5 [4]	9.4 [4]	13 [4]	19
Silica*	mg/L	0.20	18 [4]	20 [4]	28 [4]	41

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-01 MB01 04/11/2025	PGK0298-02 MB05 04/11/2025	PGK0298-03 PB03 04/11/2025	PGK0298-04 PB05 04/11/2025	PGK0298-05 PB06 04/11/2025
Aluminium	mg/L	0.010	21	0.024	25	25	38
Arsenic	mg/L	0.0010	0.020	<0.0020 [5]	0.032	0.0041	0.0043
Boron	mg/L	0.020	11	7.0	10	10	9.6
Barium	mg/L	0.0010	0.023	0.16	0.022	0.025	0.022
Beryllium	mg/L	0.00050	0.023	<0.0010 [5]	0.015	0.015	0.0081
Cadmium	mg/L	0.00010	0.00028	0.00026	<0.00020 [5]	<0.00020 [5]	0.00026
Cobalt	mg/L	0.0010	0.11	0.017	0.047	0.047	0.046
Chromium	mg/L	0.0010	0.0092	0.0036	0.0043	0.0035	0.0036
Copper	mg/L	0.0010	0.021	0.0056	0.053	0.052	0.0090
Iron	mg/L	0.010	7.5	<0.020 [5]	15	16	0.59
Mercury	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.0010	1.2	0.60	0.84	0.84	0.48
Manganese	mg/L	0.0010	1.0	0.34	1.0	1.0	0.48
Molybdenum	mg/L	0.0010	<0.0020 [5]	0.011	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]
Nickel	mg/L	0.0010	0.55	0.081	0.19	0.19	0.14
Lead	mg/L	0.0010	1.4	<0.0020 [5]	0.066	0.061	0.027
Rubidium*	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	0.16
Selenium	mg/L	0.0010	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]
Strontium	mg/L	0.0010	4.0	3.8	3.5	3.6	3.7
Thorium	mg/L	0.00050	[NA]	[NA]	[NA]	[NA]	<0.0010 [4]
Titanium	mg/L	0.0010	<0.0020 [5]	<0.0020 [5]	<0.0020 [5]	0.0021	<0.0020 [5]
Uranium	mg/L	0.0010	[NA]	[NA]	[NA]	[NA]	0.12
Vanadium	mg/L	0.0010	0.0063	<0.0020 [5]	0.0028	<0.0020 [5]	<0.0020 [5]
Zinc	mg/L	0.0010	0.073	0.11	0.058	0.059	0.066

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-06 PB09PBGCP02 04/11/2025	PGK0298-07 PB10 04/11/2025	PGK0298-08 PB11 04/11/2025	PGK0298-09 PB12 04/11/2025
Aluminium	mg/L	0.010	<0.020 [4]	<0.020 [4]	<0.020 [4]	<0.010
Arsenic	mg/L	0.0010	0.12	0.15	0.27	0.0035
Boron	mg/L	0.020	6.3	6.4	6.7	1.5
Barium	mg/L	0.0010	0.075	0.076	0.072	0.023
Beryllium	mg/L	0.00050	<0.0010 [4]	<0.0010 [4]	0.0012	<0.00050
Cadmium	mg/L	0.00010	<0.00020 [4]	<0.00020 [4]	0.00076	<0.00010
Cobalt	mg/L	0.0010	0.012	0.022	0.055	<0.0010
Chromium	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Copper	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Iron	mg/L	0.010	7.0	6.6	5.8	0.34
Mercury	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.0010	7.0	6.7	5.4	1.1
Manganese	mg/L	0.0010	18	17	14	0.044
Molybdenum	mg/L	0.0010	0.050	0.046	0.034	0.0032
Nickel	mg/L	0.0010	0.14	0.32	0.80	0.0011
Lead	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Rubidium*	mg/L	0.0010	[NA]	1.6	[NA]	0.094
Selenium	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-06 PB09PBGCP02 04/11/2025	PGK0298-07 PB10 04/11/2025	PGK0298-08 PB11 04/11/2025	PGK0298-09 PB12 04/11/2025
Strontium	mg/L	0.0010	8.2	8.2	7.6	0.61
Thorium	mg/L	0.00050	[NA]	<0.0010 [4]	[NA]	<0.00050
Titanium	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Uranium	mg/L	0.0010	[NA]	0.080	[NA]	0.0063
Vanadium	mg/L	0.0010	<0.0020 [4]	<0.0020 [4]	<0.0020 [4]	<0.0010
Zinc	mg/L	0.0010	0.0063	0.026	0.032	<0.0010

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Inorganics - Physical Parameters (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
pH	pH units		3.9	6.8	4.4	4.2	3.5
pH (True Colour)	pH units		3.9	6.9	4.4	4.2	3.5
Electrical Conductivity	µS/cm	2.0	66000	50000	57000	57000	53000
Total Dissolved Solids	mg/L	5.0	43000	28000	33000	34000	33000
Total Suspended Solids	mg/L	5.0	7.0	24	6.0	11	<5.0
Turbidity	NTU	0.10	1.8	4.2	3.9	11	0.65
Turbidity (filtered)*	NTU	0.10	0.70	0.46	0.32	0.41	0.34
Colour (True)	PCU	5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09	PGK0298-10
Your Reference			PB09PBGCP02	PB10	PB11	PB12	MTM-WWTP-Station 2
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
pH	pH units		7.2	7.1	7.3	7.8	7.6
pH (True Colour)	pH units		7.2	7.2	7.4	7.9	[NA]
Electrical Conductivity	µS/cm	2.0	59000	60000	58000	12000	[NA]
Total Dissolved Solids	mg/L	5.0	36000	41000	40000	7200	[NA]
Total Suspended Solids	mg/L	5.0	22	22	24	<5.0	5.0
Turbidity	NTU	0.10	88	100 [8]	91	1.7	[NA]
Turbidity (filtered)*	NTU	0.10	21	28	0.89	0.63	[NA]
Colour (True)	PCU	5.0	74	110	<5.0	<5.0	[NA]

Envirolab ID	Units	PQL	PGK0298-11
Your Reference			MTM-WWTP-Station 3
Date Sampled			04/11/2025
pH	pH units		7.9
pH (True Colour)	pH units		[NA]
Electrical Conductivity	µS/cm	2.0	[NA]
Total Dissolved Solids	mg/L	5.0	[NA]
Total Suspended Solids	mg/L	5.0	<5.0
Turbidity	NTU	0.10	[NA]
Turbidity (filtered)*	NTU	0.10	[NA]
Colour (True)	PCU	5.0	[NA]

Certificate of Analysis PGK0298

Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	220	<5.0	<5.0	<5.0
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	220	<5.0	<5.0	<5.0
Chloride	mg/L	1.0	24000	18000	21000	20000	19000
Sulfate	mg/L	1.0	3900	2600	3200	3100	2800
Calcium	mg/L	0.50	130 [4]	350 [4]	120 [4]	120 [4]	120 [4]
Magnesium	mg/L	0.50	1800 [4]	1100 [4]	1400 [4]	1400 [4]	1300 [4]
Potassium	mg/L	0.50	270 [4]	240 [4]	250 [4]	250 [4]	250 [4]
Sodium	mg/L	0.50	14000 [4]	9700 [4]	12000 [4]	12000 [4]	11000 [4]
Hardness (calc) equivalent CaCO3	mg/L	3.0	7600 [4]	5400 [4]	6100 [4]	6100 [4]	5500 [4]
Ionic Balance	%		0.45	-2.1	-1.7	-0.27	-0.79

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09
Your Reference			PB09PBGCP02	PB10	PB11	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	120	110	170	380
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	120	110	170	380
Chloride	mg/L	1.0	22000	22000	21000	3800
Sulfate	mg/L	1.0	3400	3500	3300	690
Calcium	mg/L	0.50	760 [4]	740 [4]	670 [4]	88
Magnesium	mg/L	0.50	1500 [4]	1500 [4]	1400 [4]	420
Potassium	mg/L	0.50	230 [4]	230 [4]	230 [4]	24
Sodium	mg/L	0.50	11000 [4]	11000 [4]	11000 [4]	2000
Hardness (calc) equivalent CaCO3	mg/L	3.0	8100 [4]	7900 [4]	7600 [4]	1900
Ionic Balance	%		-2.5	-4.3	-2.7	-1.5

Certificate of Analysis PGK0298

Inorganics - Miscellaneous and Common Anions (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025

Fluoride	mg/L	0.10	2.0	1.6	1.7	1.7	0.99
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Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09
Your Reference			PB09PBGCP02	PB10	PB11	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025

Fluoride	mg/L	0.10	0.82	0.92	0.99	0.19
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Certificate of Analysis PGK0298

Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water)

Envirolab ID	Units	PQL	PGK0298-01	PGK0298-02	PGK0298-03	PGK0298-04	PGK0298-05
Your Reference			MB01	MB05	PB03	PB05	PB06
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025	04/11/2025
Ferrous Iron	mg/L	0.050	7.8	<0.050	17	17	0.59

Envirolab ID	Units	PQL	PGK0298-06	PGK0298-07	PGK0298-08	PGK0298-09
Your Reference			PB09PBGCP02	PB10	PB11	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025	04/11/2025
Ferrous Iron	mg/L	0.050	6.8	6.4	5.4	0.19

Certificate of Analysis PGK0298

Inorganics - Nutrients (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-01 MB01 04/11/2025	PGK0298-02 MB05 04/11/2025	PGK0298-03 PB03 04/11/2025	PGK0298-04 PB05 04/11/2025	PGK0298-05 PB06 04/11/2025
Ammonia as N	mg/L	0.0050	0.23	0.054	0.16	0.15	0.15
Nitrate as N	mg/L	0.0050	<0.0050	0.44	0.0059	0.023	0.12
Nitrate as NO3 by calculation	mg/L	0.020	<0.020	2.0	0.026	0.10	0.51
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite as NO2 by calculation	mg/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020
NOx as N	mg/L	0.0050	0.0050	0.44	0.0065	0.023	0.12
TKN as N by calculation	mg/L	0.10	0.31	0.54	0.36	0.27	0.22
Total Nitrogen	mg/L	0.10	0.32	0.98	0.37	0.29	0.34
Phosphate as P	mg/L	0.0050	0.029	0.029	0.034	0.033	0.040

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-06 PB09PBGCP02 04/11/2025	PGK0298-07 PB10 04/11/2025	PGK0298-08 PB11 04/11/2025	PGK0298-09 PB12 04/11/2025	PGK0298-10 MTM-WWTP-Stage2 04/11/2025
Ammonia as N	mg/L	0.0050	1.3	1.4	0.91	0.0069	[NA]
Nitrate as N	mg/L	0.0050	<0.050 [5]	<0.050 [5]	0.021	<0.0050	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	<0.20 [5]	<0.20 [5]	0.094	<0.020	[NA]
Nitrite as N	mg/L	0.0050	<0.050 [5]	<0.050 [5]	<0.0050	<0.0050	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	<0.20 [5]	<0.20 [5]	<0.020	<0.020	[NA]
NOx as N	mg/L	0.0050	<0.050 [5]	<0.050 [5]	0.022	<0.0050	[NA]
TKN as N by calculation	mg/L	0.10	1.5	1.6	1.1	0.15	[NA]
Total Nitrogen	mg/L	0.10	1.5	1.6	1.1	0.16	18
Phosphate as P	mg/L	0.0050	<0.0050	<0.050 [5]	0.021	0.031	[NA]

Envirolab ID Your Reference Date Sampled	Units	PQL	PGK0298-11 MTM-WWTP-Stage3 04/11/2025
Ammonia as N	mg/L	0.0050	[NA]
Nitrate as N	mg/L	0.0050	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	[NA]
Nitrite as N	mg/L	0.0050	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	[NA]
NOx as N	mg/L	0.0050	[NA]
TKN as N by calculation	mg/L	0.10	[NA]
Total Nitrogen	mg/L	0.10	33
Phosphate as P	mg/L	0.0050	[NA]

Certificate of Analysis PGK0298

Inorganics - Common Wastewater Parameters (Water)

Envirolab ID	Units	PQL	PGK0298-10	PGK0298-11
Your Reference			MTM-WWTP-Station ge2	MTM-WWTP-Station ge3
Date Sampled			04/11/2025	04/11/2025
BOD	mg/L	5.0	<5.0	<5.0

Certificate of Analysis PGK0298

Microbiological Suite (Water)

Envirolab ID Your Reference	Units	PQL	PGK0298-10 MTM-WWTP-Station ge2	PGK0298-11 MTM-WWTP-Station ge3
Date Sampled			04/11/2025	04/11/2025
Thermotolerant Coliforms	cfu/100mL	1	10 [1]	<10
E.coli	cfu/100mL	1	10 [1]	<10

Certificate of Analysis PGK0298

Subcontracted Radiological - Radium 226 and 228 - Certificate: ME386128 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGK0298-05	PGK0298-07	PGK0298-09
Your Reference			PB06	PB10	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025
Radium 226	Bq/L		14.7	0.669	<0.042
Radium 228	Bq/L		21.7	0.372	<0.11

Certificate of Analysis PGK0298

Subcontracted Radiological - Certificate: ME386128 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGK0298-05	PGK0298-07	PGK0298-09
Your Reference			PB06	PB10	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025
Gross alpha	Bq/L		16.8	1.31	0.495
Gross beta	Bq/L		25.4	1.03	<0.091
Lead-210	Bq/L		1.18	<0.22	<0.21

Certificate of Analysis PGK0298

Subcontracted Radiological - Potassium 40 - Certificate: ME386128 - Analysed By SGS Environment Services (VIC) (Water)

Envirolab ID	Units	PQL	PGK0298-05	PGK0298-07	PGK0298-09
Your Reference			PB06	PB10	PB12
Date Sampled			04/11/2025	04/11/2025	04/11/2025
Potassium-40	Bq/L		8.5	8.1	0.79

Certificate of Analysis PGK0298

Result Comments

Identifier	Description
[1]	Count is an estimate. Results derived from counts outside of the range of 10-80 are considered an estimate as per AS4276.1
[4]	PQL(s) has/have been raised due to suppression of the internal standard, which required the sample(s) to be diluted. This is likely due to the high level of salts in the sample.
[5]	PQL has been raised due to matrix requiring dilution
[8]	pale yellow cloudy solution

Certificate of Analysis PGK0298

Method Summary

Method ID	Methodology Summary
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-001	pH Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-002	Conductivity and Salinity - measured using a conductivity cell at 25°C. Soil results reported from a 1:5 Soil:Water extract unless otherwise specified. Please note Resistivity is estimated by calculation and may not correlate with results otherwise obtained using the Resistivity current method (based on AS 1289.4.4.1), depending on the nature of the soil being analysed. Blanks may yield EC readings >1µS/cm, this is likely due to adsorption of Carbon Dioxide while the blank sample is sat on the instrument autosampler prior to analysis. The values are generally insignificant (<5µS/cm) compared to most actual sample conductivities.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition,4500-CO2 D.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation: TDS = EC*0.6
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
INORG-026	Fluoride determined by ion selective electrode (ISE) based on APHA latest edition, 4500-F-C. Solids are reported from a 1:5 water extract unless otherwise specified.
INORG-028	Measured by visual comparison and/or spectrophotometrically.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-076	Ferrous Iron determined colourimetrically by Discrete Analyser/UV-VIS.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-091	BOD and/or cBOD - Analysed in accordance with APHA latest edition 5210 D.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
MICRO-001B	E. coli/Thermotolerant coliforms: Microbial Water Analysis - in accordance with MICRO-001 (AS4276.5-latest edition). Recommended maximums based on NHMRC Australian Drinking Water Guidelines. Please note that results for this test derived from counts outside of the range 10-80 are considered approximate as per AS4276.1.
SUB-027	Subcontracted to SGS - Accreditation number 2562
SUB-027_GAB1	Subcontracted to SGS - Accreditation number 2562

Certificate of Analysis PGK0298

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGK0298

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates can be downloaded from the [Envirolab Resources website](#) or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGK0298

Client Details

Client	Process Minerals International Pty Ltd (PMI)
Your Reference	MTM Annual Groundwater Analysis 2025
Date Issued	05/12/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	No	Duplicate Outliers Exist - See detailed list below
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGK0298

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Total Phosphorus Water	9-11	04/11/2025	07/11/2025	07/11/2025	Yes
	1-5	04/11/2025	07/11/2025	10/11/2025	Yes
	6-8	04/11/2025	07/11/2025	12/11/2025	Yes
Dissolved Metals Water	1-5	04/11/2025	07/11/2025	10/11/2025	Yes
	9	04/11/2025	10/11/2025	10/11/2025	Yes
	6-8	04/11/2025	10/11/2025	11/11/2025	Yes
Dissolved Metals (LL) Water	1-5	04/11/2025	07/11/2025	08/11/2025	Yes
	6-9	04/11/2025	10/11/2025	11/11/2025	Yes
	5, 7, 9	04/11/2025	11/11/2025	13/11/2025	Yes
Dissolved Metals (LL)-Hg Water	1-9	04/11/2025	07/11/2025	10/11/2025	Yes
Colour-True Water	1-9	04/11/2025	07/11/2025	07/11/2025	Yes
EC Water	1-9	04/11/2025	06/11/2025	07/11/2025	Yes
pH Water	1-11	04/11/2025	06/11/2025	07/11/2025	No
pH (True Colour) Water	1-9	04/11/2025	06/11/2025	06/11/2025	Yes
TDS Water	1-9	04/11/2025	10/11/2025	10/11/2025	Yes
TSS Water	1-11	04/11/2025	10/11/2025	10/11/2025	Yes
Turbidity Water	1-9	04/11/2025	07/11/2025	10/11/2025	No
Turbidity (filtered) Water	1-9	04/11/2025	07/11/2025	10/11/2025	No
Alkalinity Suite Water	1-9	04/11/2025	06/11/2025	07/11/2025	Yes
Chloride Water	1-9	04/11/2025	07/11/2025	08/11/2025	Yes
Dissolved Cations Water	1-5	04/11/2025	07/11/2025	10/11/2025	Yes
	9	04/11/2025	10/11/2025	10/11/2025	Yes
	6-8	04/11/2025	10/11/2025	11/11/2025	Yes
Ion Balance Water	1-9	04/11/2025	07/11/2025	14/11/2025	Yes
Sulfate Water	1-9	04/11/2025	07/11/2025	08/11/2025	Yes
Fluoride Water	1-9	04/11/2025	06/11/2025	10/11/2025	Yes
Ferrous Iron Water	1-9	04/11/2025	07/11/2025	07/11/2025	Yes
Nitrogen - Ammonia Water	1-9	04/11/2025	07/11/2025	07/11/2025	Yes
Nitrogen - Nitrate Water	1-5, 8-9	04/11/2025	07/11/2025	07/11/2025	Yes
	6-7	04/11/2025	07/11/2025	10/11/2025	Yes
Nitrogen - Nitrite Water	1-5, 8-9	04/11/2025	07/11/2025	07/11/2025	No
	6-7	04/11/2025	07/11/2025	10/11/2025	No
Nitrogen - NOx Water	1-5, 8-9	04/11/2025	07/11/2025	07/11/2025	Yes
	6-7	04/11/2025	07/11/2025	10/11/2025	Yes
Nitrogen - Total N Water	1-11	04/11/2025	07/11/2025	09/11/2025	Yes
Phosphate as P Water	1-6, 8-9	04/11/2025	07/11/2025	07/11/2025	No
	7	04/11/2025	07/11/2025	10/11/2025	No
TKN as N calc Water	1-9	04/11/2025	06/11/2025	14/11/2025	Yes
BOD Water	10-11	04/11/2025	10/11/2025	17/11/2025	Yes
E. coli & T.T.coli Water	10-11	04/11/2025	05/11/2025	05/11/2025	Yes

Data Quality Assessment Summary PGK0298

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Radium 226 & 228 Water	5, 7, 9	04/11/2025	14/11/2025	14/11/2025	Yes
Gross alpha & beta Water	5, 7, 9	04/11/2025	12/11/2025	21/11/2025	Yes
Lead 210 Water	5, 7, 9	04/11/2025	14/11/2025	14/11/2025	Yes
GROSS_ALPHA_BETA_SGS Water	9	04/11/2025	01/11/2025	21/11/2025	Yes
	5, 7	04/11/2025	18/11/2025	21/11/2025	Yes

Outliers: Duplicates

METALS-020 | Dissolved Metals (Water) | Batch BGK0917

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BGK0917-DUP2#	DUP2	Silicon	20.00	114

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK0917

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BGK0917-DUP2#	DUP2	Calcium	20.00	96.6
BGK0917-DUP2#	DUP2	Hardness (calc) equivalent CaCO3	20.00	75.1
BGK0917-DUP2#	DUP2	Magnesium	20.00	20.3
BGK0917-DUP2#	DUP2	Sodium	20.00	50.7

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK1146

Sample ID	Duplicate ID	Analyte	% Limits	RPD
PGK0298-09	DUP2	Iron	20.00	167

Data Quality Assessment Summary PGK0298

Outliers: Matrix Spike

METALS-020 | Dissolved Metals (Water) | Batch BGK0917

Sample ID	Analyte	% Limits	% Recovery
BGK0917-MS1#	Silicon	70 - 130	##[3]

METALS-020 | Dissolved Metals (Water) | Batch BGK1147

Sample ID	Analyte	% Limits	% Recovery
BGK1147-MS1#	Silicon	70 - 130	##[2]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK0916

Sample ID	Analyte	% Limits	% Recovery
BGK0916-MS1#	Boron	70 - 130	##[2]

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK1146

Sample ID	Analyte	% Limits	% Recovery
BGK1146-MS1#	Boron	70 - 130	##[2]
BGK1146-MS1#	Iron	70 - 130	##[2]
BGK1146-MS1#	Manganese	70 - 130	##[2]

Outliers: QC Frequency

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGK1336

Analysis	QC Type	Expected	Reported
BOD	Duplicate	2	0

Quality Control PGK0298

METALS-020 | Acid Extractable Metals (Water) | Batch BGK0913

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK0913-DUP1#	PGK0298-03	BGK0913-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Phosphorus	mg/L	0.050	<0.050	90.8 90.1 0.790	<0.25 <0.25 [NA]	89.9	92.1		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGK0917

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK0917-DUP1#	BGK0917-DUP2#	BGK0917-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Silicon	mg/L	0.10	<0.10	20.2 20.1 0.298	17.5 4.77 114	97.3	##[3]		
Silica	mg/L	0.20	<0.20	43.2 43.1 0.298	10.3 10.2 [NA]	[NA]	[NA]		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Dissolved Metals (Water) | Batch BGK1147

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK1147-DUP1#	PGK0298-09	BGK1147-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Silicon	mg/L	0.10	<0.10	25.0 24.6 1.74	19.4 19.5 0.792	96.1	##[2]		
Silica	mg/L	0.20	<0.20	53.6 52.6 1.74	41.4 41.8 0.792	[NA]	[NA]		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK0916

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK0916-DUP1#	BGK0916-DUP2#	BGK0916-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.10 <0.10 [NA] [5]	86.8	82.6		
Arsenic	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	97.1	93.2		
Barium	mg/L	0.0010	<0.0010	0.0536 0.0545 1.61	0.435 0.394 9.77	99.0	99.8		
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.0050 <0.0050 [NA] [5]	90.9	88.1		
Boron	mg/L	0.020	<0.020	0.02 <0.020 [NA]	3.44 3.12 9.76	80.9	##[2]		
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.0010 <0.0010 [NA] [5]	100	96.7		
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	85.6	91.4		
Cobalt	mg/L	0.0010	<0.0010	0.00143 0.00139 [NA]	<0.010 <0.010 [NA] [5]	97.1	91.0		
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0150 0.0126 [NA]	94.8	90.6		
Iron	mg/L	0.010	<0.010	2.11 2.11 0.0464	4.71 4.17 12.1	82.2	98.2		
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	97.9	96.5		
Lithium	mg/L	0.0010	<0.0010	0.00915 0.00915 0.0437	0.668 0.600 10.6	96.7	93.7		
Manganese	mg/L	0.0010	<0.0010	0.0892 0.0877 1.64	9.69 8.39 14.4	92.8	87.2		
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	83.1	94.6		
Nickel	mg/L	0.0010	<0.0010	0.00265 0.00255 [NA]	<0.010 <0.010 [NA] [5]	96.9	90.6		
Selenium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	109	105		
Strontium	mg/L	0.0010	<0.0010	0.0471 0.0469 0.292	95.4 83.5 13.2	92.9	88.2		
Titanium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	89.6	87.1		
Vanadium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.010 <0.010 [NA] [5]	95.9	93.6		
Zinc	mg/L	0.0010	<0.0010	0.00716 0.00706 1.29	0.0267 0.0243 [NA]	103	93.6		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGK0925

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				BGK0925-DUP1#	BGK0925-DUP2#	BGK0925-MS1#			
				Samp QC RPD %	Samp QC RPD %				
Mercury	mg/L	0.000050	<0.000050	<0.000050 <0.000050 [NA]	<0.000050 <0.000050 [NA]	92.8	82.0		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0298

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK1146

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK1146-DUP1#	PGK0298-09		
				Samp QC RPD %	Samp QC RPD %		
Aluminium	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	<0.010 <0.010 [NA]	90.4	91.1
Arsenic	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00353 0.00325 [NA]	93.3	98.4
Barium	mg/L	0.0010	<0.0010	0.0330 0.0332 0.438	0.0229 0.0228 0.394	99.6	80.2
Beryllium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	91.9	94.0
Boron	mg/L	0.020	<0.020	0.509 0.533 4.65	1.52 1.46 3.96	106	##[2]
Cadmium	mg/L	0.00010	<0.00010	<0.00010 <0.00010 [NA]	<0.00010 <0.00010 [NA]	102	98.3
Chromium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	100	91.6
Cobalt	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	95.2	90.2
Copper	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	91.8	89.2
Iron	mg/L	0.010	<0.010	<0.010 <0.010 [NA]	0.342 0.0309 167	104	##[2]
Lead	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	98.0	91.8
Lithium	mg/L	0.0010	<0.0010	0.00856 0.00851 0.609	1.12 1.11 1.05	98.3	98.1
Manganese	mg/L	0.0010	<0.0010	0.0202 0.0200 0.958	0.0436 0.0430 1.18	91.2	##[2]
Molybdenum	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00322 0.00296 [NA]	82.2	97.4
Nickel	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.00108 <0.0010 [NA] [6]	94.3	88.1
Selenium	mg/L	0.0010	<0.0010	0.00207 0.00201 [NA]	<0.0010 <0.0010 [NA]	102	103
Strontium	mg/L	0.0010	<0.0010	0.280 0.279 0.147	0.607 0.605 0.394	92.2	70.6
Thorium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	90.4	85.2
Titanium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	<0.0010 <0.0010 [NA]	86.0	90.5
Uranium	mg/L	0.0010	<0.0010	0.00117 0.00117 [NA]	0.00634 0.00630 0.633	100	93.7
Vanadium	mg/L	0.0010	<0.0010	0.0104 0.0104 0.221	<0.0010 <0.0010 [NA]	93.0	97.3
Zinc	mg/L	0.0010	<0.0010	0.00102 0.00105 [NA]	<0.0010 <0.0010 [NA]	97.0	88.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGK1611

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK1611-DUP1#	BGK1611-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Rubidium	mg/L	0.0010	<0.0010	0.00497 0.00501 [NA]	0.0380 0.0384 1.04	94.6	94.2
Thorium	mg/L	0.00050	<0.00050	<0.00050 <0.00050 [NA]	<0.00050 <0.00050 [NA]	96.5	89.1
Uranium	mg/L	0.0010	<0.0010	<0.0010 <0.0010 [NA]	0.0140 0.0140 0.129	86.6	95.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGK0730

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK0730-DUP1#	BGK0730-DUP2#	
				Samp QC RPD %	Samp QC RPD %	
pH	pH units		6.0	7.7 7.7 0.261	7.6 7.7 0.131	102
Electrical Conductivity	µS/cm	2.0	2.40	1150 1160 1.11	1210 1210 0.149	99.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-001 | Inorganics - Physical Parameters (Water) | Batch BGK0822

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK0822-DUP1#	PGK0298-03	
				Samp QC RPD %	Samp QC RPD %	
pH (True Colour)	pH units		6.5	8.0 8.0 0.375	4.4 4.3 0.230	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0298

INORG-028 | Inorganics - Physical Parameters (Water) | Batch BGK0896

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				PGK0298-01 Samp QC RPD %	BGK0896-DUP2# Samp QC RPD %	
Colour (True)	PCU	5.0	<5.0	<5.0 <5.0 [NA]	5.53 5.18 [NA]	104

Analyte	Units	PQL	Blank			LCS %
						[NA]
Colour (True)	PCU	5.0	<5.0			[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGK1056

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK1056-DUP1# Samp QC RPD %	PGK0298-02 Samp QC RPD %	
Turbidity (filtered)	NTU	0.10	<0.10	202 198 2.00	0.460 0.480 [NA]	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-022 | Inorganics - Physical Parameters (Water) | Batch BGK1058

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK1058-DUP1# Samp QC RPD %	PGK0298-09 Samp QC RPD %	
Turbidity	NTU	0.10	<0.10	0.320 0.340 [NA]	1.73 1.71 1.16	96.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-018 | Inorganics - Physical Parameters (Water) | Batch BGK1204

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK1204-DUP1# Samp QC RPD %	PGK0298-02 Samp QC RPD %	
Total Dissolved Solids	mg/L	5.0	<5.0	13600 13700 0.732	27900 32700 15.8	94.9

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-019 | Inorganics - Physical Parameters (Water) | Batch BGK1205

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK1205-DUP1# Samp QC RPD %	PGK0298-10 Samp QC RPD %	
Total Suspended Solids	mg/L	5.0	<5.0	952 914 4.07	5.00 5.00 [NA]	90.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK0730

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGK0730-DUP1# Samp QC RPD %	BGK0730-DUP2# Samp QC RPD %	
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	284 278 2.44	341 328 3.62	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	284 277 2.44	341 328 3.62	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0298

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK0917

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0917-DUP1# Samp QC RPD %	BGK0917-DUP2# Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	3.23 3.25 0.420	6030 17300 96.6	94.1	94.9
Magnesium	mg/L	0.50	<0.50	19.7 19.9 1.19	2490 3050 20.3	95.6	96.5
Potassium	mg/L	0.50	<0.50	3.25 3.23 0.544	553 576 4.03	97.0	99.6
Sodium	mg/L	0.50	<0.50	221 222 0.339	31400 52700 50.7	89.0	89.2
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	89.0 90.0 1.12	25300 55800 75.1	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK1019

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGK0298-01 Samp QC RPD %	BGK1019-DUP2# Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	24500 24400 0.370	<1.0 <1.0 [NA]	103	91.9
Sulfate	mg/L	1.0	<1.0	3880 3900 0.327	<1.0 <1.0 [NA]	98.8	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGK1147

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK1147-DUP1# Samp QC RPD %	PGK0298-09 Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	110 107 2.13	87.8 87.3 0.523	94.8	83.1
Magnesium	mg/L	0.50	<0.50	61.8 60.3 2.60	419 418 0.311	97.0	83.9
Potassium	mg/L	0.50	<0.50	<0.50 <0.50 [NA]	24.1 24.1 0.0956	95.0	93.6
Sodium	mg/L	0.50	<0.50	89.3 88.6 0.720	1960 1980 0.959	93.1	73.8
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	528 516 2.36	1940 1940 0.335	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-026 | Inorganics - Miscellaneous and Common Anions (Water) | Batch BGK0732

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0732-DUP1# Samp QC RPD %	PGK0298-01 Samp QC RPD %		
Fluoride	mg/L	0.10	<0.10	0.110 <0.10 [NA] [6]	2.00 1.96 2.12	102	100

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-076 | Inorganics - Speciated Cr (III/VI) and Fe (II/III) (Water) | Batch BGK1008

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK1008-DUP1# Samp QC RPD %	PGK0298-02 Samp QC RPD %		
Ferrous Iron	mg/L	0.050	<0.050	620 634 2.37	<0.050 <0.050 [NA]	106	117

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGK0298

INORG-057 | Inorganics - Nutrients (Water) | Batch BGK0896

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGK0298-01 Samp QC RPD %	BGK0896-DUP2# Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	0.228 0.234 2.47	1.51 1.53 1.37	93.2	101
Nitrate as N	mg/L	0.0050	<0.0050	<0.0050 0.00542 [NA] [6]	2.37 2.38 0.680	110	109
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.0472 0.0477 1.17	[NA]	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	0.00505 0.00587 [NA]	2.41 2.43 0.690	110	108
Phosphate as P	mg/L	0.0050	<0.0050	0.0292 0.0265 9.94	1.45 1.45 0.366	118	100

Analyte	Units	PQL	Blank	LCS %	Spike %
Ammonia as N	mg/L	0.0050	<0.0050	[NA]	[NA]
Nitrate as N	mg/L	0.0050	<0.0050	[NA]	[NA]
Nitrate as NO3 by calculation	mg/L	0.020	<0.020	[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	93.0	114
Nitrite as NO2 by calculation	mg/L	0.020	<0.020	[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	[NA]	[NA]
Phosphate as P	mg/L	0.0050	<0.0050	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGK0994

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGK0994-DUP1# Samp QC RPD %	PGK0298-04 Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	0.476 0.556 15.5	0.289 0.302 [NA]	97.0	93.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-091 | Inorganics - Common Wastewater Parameters (Water) | Batch BGK1336

Analyte	Units	PQL	Blank	LCS %
BOD	mg/L	5.0	<5.0	83.3

MICRO-001B | Microbiological Suite (Water) | Batch BGK0758

Analyte	Units	PQL	Blank	LCS %
Thermotolerant Coliforms	cfu/100mL	1	<1	[NA]
E.coli	cfu/100mL	1	<1	[NA]

QC Comments

Identifier	Description
[2]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[3]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[5]	PQL has been raised due to matrix requiring dilution
[6]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.



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