

CERTIFICATE OF ANALYSES

GENERAL WATER QUALITY PARAMETERS

Date received: 2021-12-13

Project number: 1000

Report number: 106081

Date completed: 2022-01-10

Order number: PO100078110

Client name: CSIR - HySA Infrastructure and CCU Research Group

Address: Building 15, CSIR Pretoria, Brummeria,

Telephone: 012 841 2967

Facsimile:

Contact person: Ms. N. Mthembu

e-mail: nmthembu@csir.co.za

Mobile: 061 438 2117

Analyses in mg/ℓ (Unless specified otherwise)		Method Identification	Sample Identification	
			OH AMD	OHO AMD
Sample Number			148464	148465
Date/Time Sampled			N/A	N/A
Sodium as Na (Unfiltered)	A	WLAB015	1783	1784
Potassium as K (Unfiltered)	A	WLAB015	1.6	2.3
Calcium as Ca (Unfiltered)	A	WLAB015	335	318
Magnesium as Mg (Unfiltered)	A	WLAB015	237	224
Aluminium as Al	A	WLAB015	275	266
Antimony as Sb	A	WLAB050	<0.001	<0.001
Arsenic as As	A	WLAB050	0.016	0.014
Barium as Ba	N	WLAB050	0.001	0.010
Beryllium as Be	N	WLAB050	0.039	0.036
Bismuth as Bi	N	WLAB050	<0.001	<0.001
Boron as B	N	WLAB050	0.325	5.64
Cadmium as Cd	A	WLAB050	0.006	0.006
Caesium as Cs	N	WLAB050	0.009	0.009
Cerium as Ce	N	WLAB050	3.05	2.59
Chromium as Cr	N	WLAB050	0.018	0.010
Cobalt as Co	N	WLAB050	0.769	0.736
Copper as Cu	N	WLAB050	0.177	0.264
Dysprosium as Dy	N	WLAB050	0.185	0.168
Erbium as Er	N	WLAB050	0.098	0.087
Europium as Eu	N	WLAB050	0.037	0.033
Gadolinium as Gd	N	WLAB050	0.207	0.186
Galium as Ga	N	WLAB050	0.002	0.003
Germanium as Ge	N	WLAB050	0.006	0.005
Gold as Au	N	WLAB050	<0.001	<0.001
Hafnium as Hf	N	WLAB050	0.001	<0.001
Holmium as Ho	N	WLAB050	0.037	0.033
Iridium as Ir	N	WLAB050	<0.001	<0.001
Iron as Fe	A	WLAB015	17	4.96



A. van de Wetering - Chemical Technical Signatory

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Sample condition acceptable unless specified on the report.

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Analyses in mg/ℓ (Unless specified otherwise)		Method Identification	Sample Identification	
			OH AMD	OHO AMD
Sample Number			148464	148465
Date/Time Sampled			N/A	N/A
Lanthanum as La	N	WLAB050	0.425	0.400
Lead as Pb	A	WLAB050	0.002	0.003
Lithium as Li	N	WLAB050	0.200	0.186
Lutetium as Lu	N	WLAB050	0.009	0.008
Manganese as Mn	A	WLAB015	49	52
Mercury as Hg	A	WLAB047	<0.001	<0.001
Molybdenum as Mo	N	WLAB050	<0.001	<0.001
Neodymium as Nd	N	WLAB050	0.686	0.616
Nickel as Ni	N	WLAB050	0.647	0.625
Niobium as Nb	N	WLAB050	<0.001	<0.001
Osmium as Os	N	WLAB050	0.001	0.001
Palladium as Pd	N	WLAB050	<0.001	<0.001
Phosphorus as P	N	WLAB050	0.006	<0.001
Platinum as Pt	N	WLAB050	<0.001	<0.001
Praseodymium as Pr	N	WLAB050	0.155	0.140
Rubidium as Rb	N	WLAB050	0.009	0.009
Ruthenium as Ru	N	WLAB050	<0.001	<0.001
Samarium as Sm	N	WLAB050	0.165	0.147
Scandium as Sc	N	WLAB050	0.047	0.007
Selenium as Se	A	WLAB050	<0.001	<0.001
Silicon as Si	N	WLAB015	26	25
Strontium as Sr	N	WLAB050	0.269	0.268
Tantalum as Ta	N	WLAB050	<0.001	<0.001
Tellurium as Te	N	WLAB050	<0.001	<0.001
Terbium as Tb	N	WLAB050	0.031	0.028
Thallium as Tl	N	WLAB050	<0.001	<0.001
Thorium as Th	N	WLAB050	0.022	0.002
Thulium as Tm	N	WLAB050	0.012	0.011
Tin as Sn	N	WLAB050	<0.001	<0.001



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Analyses in mg/ℓ (Unless specified otherwise)		Method Identification	Sample Identification	
			OH AMD	OHO AMD
Sample Number			148464	148465
Date/Time Sampled			N/A	N/A
Titanium as Ti	N	WLAB050	0.077	0.075
Tungsten as W	N	WLAB050	<0.001	<0.001
Uranium as U	A	WLAB050	0.029	0.004
Vanadium as V	N	WLAB050	<0.001	<0.001
Ytterbium as Yb	N	WLAB050	0.068	0.060
Yttrium as Y	N	WLAB050	0.870	0.803
Zinc as Zn	N	WLAB050	3.73	3.82
Zirconium as Zr	N	WLAB050	0.004	0.003



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