ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EP2013600**	Page	: 1 of 5
Client	: **Kimberley Agricultural Investment**	Laboratory	: Environmental Division Perth
Contact	: Wayne Paul	Contact	: Customer Services EP
Address	: PO Box 2531 Kunanurra 6743	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: 08 9169 3113	Telephone	: +61-8-9406 1301
Project	: Carlton plain annual Ground water	Date Samples Received	: 04-Dec-2020 22:20
Order number	: ----	Date Analysis Commenced	: 08-Dec-2020
C-O-C number	: ----	Issue Date	: 14-Dec-2020 20:08
Sampler	: Wayne Paul		
Site	: ----		
Quote number	: EP/539/20		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Phenoxyacetic acid + Pesticides conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.
- EP234: Poor matrix spike recovery for particular compounds due to matrix interferences.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Y15	Y14	Y13	Y12	Y11
			Sampling date / time	15-Oct-2020 00:00	15-Oct-2020 00:00	15-Oct-2020 00:00	15-Oct-2020 00:00	15-Oct-2020 00:00
Compound	CAS Number	LOR	Unit	EP2013600-001	EP2013600-002	EP2013600-003	EP2013600-004	EP2013600-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.38	7.95	7.72	7.41	7.81
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	11200	372	6280	17000	816
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	12	7	54	34	115
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.12	0.02	0.36	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.06	0.05	0.06	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.1	0.2	0.1	0.4	0.3
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	0.1	0.3	0.2	0.5	0.3
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.03	0.98	0.07	0.10	6.97
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
2.4-D	94-75-7	10	µg/L	<10	<10	<10	<10	<10
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<10	<10
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10
EP234: Multiresidue Pesticides								
Abamectin	71751-41-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Atrazine	1912-24-9	0.01	µg/L	<0.01	0.01	<0.01	<0.01	0.01
Chlorantraniliprole	500008-45-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Diuron	330-54-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Fipronil	120068-37-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Imazapyr	94795-74-1	10.0	µg/L	<10.0	<10.0	<10.0	<10.0	<10.0
Methomyl	16752-77-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Metolachlor	51218-45-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Oxyfluorfen	42874-03-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Terbuthylazine	5915-41-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	110	109	104	107	104

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Y10	Y3	----	----	----
			Sampling date / time	15-Oct-2020 00:00	15-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2013600-006	EP2013600-007	--------	--------	--------
				Result	Result	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.62**	**7.51**	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**3720**	**10600**	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**1060**	**10**	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.08**	**0.50**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**1.14**	**0.10**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.2**	**0.6**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**2.3**	**0.7**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.79**	**0.05**	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
2.4-D	94-75-7	10	µg/L	<10	<10	----	----	----
Triclopyr	55335-06-3	10	µg/L	<10	<10	----	----	----
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	----	----	----
EP234: Multiresidue Pesticides								
Abamectin	71751-41-2	0.1	µg/L	<0.1	<0.1	----	----	----
Atrazine	1912-24-9	0.01	µg/L	<0.01	<0.01	----	----	----
Chlorantraniliprole	500008-45-7	0.1	µg/L	<0.1	<0.1	----	----	----
Diuron	330-54-1	0.02	µg/L	<0.02	<0.02	----	----	----
Fipronil	120068-37-3	0.01	µg/L	<0.01	<0.01	----	----	----
Imazapyr	94795-74-1	10.0	µg/L	<10.0	<10.0	----	----	----
Methomyl	16752-77-5	0.01	µg/L	<0.01	<0.01	----	----	----
Metolachlor	51218-45-2	0.01	µg/L	<0.01	<0.01	----	----	----
Oxyfluorfen	42874-03-3	1.0	µg/L	<1.0	<1.0	----	----	----
Terbuthylazine	5915-41-3	0.01	µg/L	<0.01	<0.01	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	**108**	**103**	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	64	140