

CERTIFICATE OF ANALYSIS

Work Order : ES2111318 Client : Paraway Pastoral Company Limited Contact : Emma Hart Address : 70 McNamara Street Orange 2800 Telephone : ---- Project : NLM EPL 21/1 Order number : ---- C-O-C number : ---- Sampler : Emma Hart Site : ---- Quote number : SY/485/20 No. of samples received : 12 No. of samples analysed : 12	Page : 1 of 5 Laboratory : Environmental Division Sydney Contact : Customer Services ES Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 Telephone : +61-2-8784 8555 Date Samples Received : 29-Mar-2021 12:30 Date Analysis Commenced : 30-Mar-2021 Issue Date : 07-Apr-2021 18:05
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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

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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, 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
∅ = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EK057G: LOR raised for Nitrite on samples 10 and 12 due to sample matrix.
- EK059G: LOR raised for NOx on samples 10 and 12 due to sample matrix.
- EK071G: It has been noted that Reactive P is greater than TP on various samples, however this difference is within the limits of experimental variation.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Point 1 GW1	Point 2 GW2	Point 3 SWTG	Point 4 SWFC	Point 5 SWFC upstream
Sampling date / time				29-Mar-2021 00:00	29-Mar-2021 00:00	29-Mar-2021 00:00	29-Mar-2021 00:00	29-Mar-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2111318-001	ES2111318-002	ES2111318-003	ES2111318-004	ES2111318-005	
				Result	Result	Result	Result	Result	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	----	----	31	17	14	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	----	----	23	25	25	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	18	28	----	----	----	
Magnesium	7439-95-4	1	mg/L	22	47	----	----	----	
Sodium	7440-23-5	1	mg/L	170	75	----	----	----	
Potassium	7440-09-7	1	mg/L	2	2	14	6	5	
ED093F: SAR and Hardness Calculations									
^ Sodium Adsorption Ratio	----	0.01	-	6.35	2.01	----	----	----	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.13	0.15	0.32	0.05	0.13	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	0.01	0.02	0.07	0.01	<0.01	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	31.8	67.7	0.73	0.28	0.22	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	31.8	67.7	0.80	0.29	0.22	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.5	3.5	1.9	0.8	0.8	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	33.3	71.2	2.7	1.1	1.0	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.22	0.10	0.76	0.19	0.14	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.25	0.08	0.72	0.20	0.12	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Point 9 Holding Pond 2	Point 10 Clean Water Storage	Point 13 Catch Pond 1	Point 14 Catch Pond 2	Point 15 Holding Pond 1
Sampling date / time				29-Mar-2021 00:00	29-Mar-2021 00:00	29-Mar-2021 00:00	29-Mar-2021 00:00	29-Mar-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2111318-006	ES2111318-007	ES2111318-008	ES2111318-009	ES2111318-010	
				Result	Result	Result	Result	Result	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	712	68	14	46	976	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	402	8	7	16	274	
ED093F: Dissolved Major Cations									
Potassium	7440-09-7	1	mg/L	296	10	15	35	323	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	57.8	0.26	0.09	1.11	54.7	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.03	0.11	0.25	<0.10	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	0.89	2.27	3.52	<0.10	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.92	2.38	3.77	<0.10	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	78.3	2.6	3.4	5.1	109	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	78.3	3.5	5.8	8.9	109	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	22.5	1.07	1.04	2.96	35.6	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	19.2	0.84	0.95	3.22	35.1	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Point 16 Contour Bank 1	Point 17 Sediment Pond 2	----	----	----
Sampling date / time				29-Mar-2021 00:00	29-Mar-2021 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2111318-011	ES2111318-012	-----	-----	-----	
				Result	Result	---	---	---	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	52	685	----	----	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	7	214	----	----	----	
ED093F: Dissolved Major Cations									
Potassium	7440-09-7	1	mg/L	16	379	----	----	----	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.38	187	----	----	----	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.10	----	----	----	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	<0.10	----	----	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.10	----	----	----	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.6	255	----	----	----	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	2.6	255	----	----	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	1.24	97.0	----	----	----	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	1.22	81.6	----	----	----	

CERTIFICATE OF ANALYSIS

Work Order : **ES2122529**
Client : **Paraway Pastoral Company Limited**
Contact : Emma Hart
Address : 70 McNamara Street
 Orange 2800
Telephone : ----
Project : NLM EPL 21/1
Order number : ----
C-O-C number : ----
Sampler : Emma Hart
Site : ----
Quote number : SY/485/20
No. of samples received : 15
No. of samples analysed : 7

Page : 1 of 4
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61-2-8784 8555
Date Samples Received : 17-Jun-2021 11:20
Date Analysis Commenced : 21-Jun-2021
Issue Date : 28-Jun-2021 10:33



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.

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<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



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

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~ = Indicates an estimated value.

- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID		SWTG	SWFC	SWFC upstream	Holding Pond 2	Clean Water Storage
		Sampling date / time		[17-Jun-2021]	[17-Jun-2021]	[17-Jun-2021]	[17-Jun-2021]	[17-Jun-2021]
Compound	CAS Number	LOR	Unit	ES2122529-003	ES2122529-004	ES2122529-005	ES2122529-009	ES2122529-010
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.70	7.74	7.78	7.95	7.32
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	437	246	247	2780	182
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	33	6	8	136	51
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	35	28	28	374	16
ED093F: Dissolved Major Cations								
Potassium	7440-09-7	1	mg/L	11	3	3	305	12
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.21	0.04	0.01	94.4	0.39
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	0.09	<0.01	<0.01	0.01	0.05
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	1.51	0.11	0.12	<0.01	2.27
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	1.60	0.11	0.12	0.01	2.32
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.8	0.8	0.9	106	2.6
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	3.4	0.9	1.0	106	4.9
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.60	0.11	0.11	27.2	1.06
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.25	0.05	0.04	19.3	0.46



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID		Catch Pond 2	Holding Pond	----	----	----
		Sampling date / time		[17-Jun-2021]	[17-Jun-2021]	----	----	----
Compound	CAS Number	LOR	Unit	ES2122529-012	ES2122529-013	-----	-----	-----
				Result	Result	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.56	7.78	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	321	2860	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	12	180	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	25	366	----	----	----
ED093F: Dissolved Major Cations								
Potassium	7440-09-7	1	mg/L	28	346	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	1.64	101	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	0.26	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	2.79	0.02	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	3.05	0.02	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	5.0	129	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	8.0	129	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	1.69	41.7	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	1.35	34.5	----	----	----