ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1512970**	Page	: 1 of 4
Amendment	: **1**		
Client	: **LIGHTNING PROTECTION INTERNATIONAL PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: ANDREW BUCKLEY	Contact	:
Address	: 49 Patriarch Drive Huntingfield Tasmania 7055	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: 03 6281 2475	Telephone	: +61-3-8549 9600
Project	: SRIM : Mineral Sample Analysis	Date Samples Received	: 05-Aug-2015 09:00
Order number	: ----	Date Analysis Commenced	: 07-Aug-2015
C-O-C number	: ----	Issue Date	: 22-Jun-2017 09:36
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

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. 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.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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 no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

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.

- Total Sulfur (ED042T) conducted by ALS Brisbane, NATA Site No. 818.
- Amendment (22/06/2017): This report has been amended and re-released to allow the updating of the project ID. All analysis results are as per the previous report.
- ED045G: The presence of thiocyanate can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Mineral Sample	----	----	----	----
				Client sampling date / time	04-Aug-2015 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1512970-001	--------	--------	--------	--------
					Result	----	----	----	----
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		**12.2**	----	----	----	----
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		**10200**	----	----	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%		<1.0	----	----	----	----
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		**3600**	----	----	----	----
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		**0.50**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		**110**	----	----	----	----
EN33: TCLP Leach									
Initial pH	----	0.1	pH Unit		**11.9**	----	----	----	----
After HCl pH	----	0.1	pH Unit		**1.8**	----	----	----	----
Extraction Fluid Number	----	1	-		**1**	----	----	----	----
Final pH	----	0.1	pH Unit		**12.6**	----	----	----	----

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Client sample ID	Mineral Sample	----	----	----	----
				Client sampling date / time	04-Aug-2015 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1512970-001	--------	--------	--------	--------
					Result	----	----	----	----
EG005C: Leachable Metals by ICPAES									
Cadmium	7440-43-9	0.05	mg/L		<0.05	----	----	----	----
Cobalt	7440-48-4	0.1	mg/L		<0.1	----	----	----	----
Copper	7440-50-8	0.1	mg/L		<0.1	----	----	----	----
Iron	7439-89-6	0.1	mg/L		<0.1	----	----	----	----
Lead	7439-92-1	0.1	mg/L		<0.1	----	----	----	----
Nickel	7440-02-0	0.1	mg/L		<0.1	----	----	----	----
Zinc	7440-66-6	0.1	mg/L		<0.1	----	----	----	----