

Seriti Power (Pty) Ltd

WASTE CLASSIFICATION AND ASSESSMENT

New Largo Colliery – Hard Overburden Samples



41105637 MAY 2024

CONFIDENTIAL



WASTE MANAGEMENT SUMMARY REPORT

WASTE IDENTIFICATION	Sample A – Sandstone
SOURCE	New Largo Coal (Pty) Ltd
DATE OF ASSESSMENT	March 2024

Relevant Regulations and Standards

- ✓ National Environmental Management: Waste Act (NEM: WA, 2008)
- ✓ National Environmental Management: Waste Amendment Act (NEM: WAA, 2014)
- ✓ National Environmental Management Laws Amendment Act (NEMLAA, 2022)
- ✓ Waste Classification and Management Regulations (GN R634 of 2013)
- ✓ Regulations for Hazardous Chemical Agents (GG 44366, 2021)
- ✓ National Norms and Standards for the Assessment of Waste to Landfill Disposal (GN R635 of 2013)
- ✓ National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)
- ✓ South African National Standard (SANS) 10234:2019, Globally Harmonised System of Classification and Labelling of Chemicals (GHS) (SANS 10234)
- South African National Standard (SANS) 11014:2010, Safety Data Sheet for Chemical Products Content and Order of Sections (SANS 11014)

Scope

Included	Element	Description
✓	Defined and Listed Waste Appraisal	Desktop appraisal of whether the waste is defined under Schedule 3 of the NEM: WAA and/or listed in Annexure 1 of GN R634. Wastes either defined or listed do not necessarily require classification in terms of SANS 10234.
✓	Appraisal of Disposal Prohibitions	Determination of possible disposal prohibitions in terms of GN R636.
✓	Waste Type Profiling for Landfill Disposal	Profiling in accordance with GN R635 and/or Waste Acceptance Criteria as detailed in GN R636.
\checkmark	Classification	Quantitative classification in broad accordance with SANS 10234.
×	Safety Data Sheet	A Safety Data Sheet (SDS) is required for all hazardous waste (excluding Health Care Risk Waste) in terms of GN R634.

Waste Description

Process Origin	Chemical Inputs	Physical Characteristics
N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	None known	Solid

Defined Waste Appraisal

Listed in Schedule 3 of NEM: WAA	Yes
Descriptor	Category A: Wastes resulting from exploration, mining quarrying, and physical and chemical treatment of minerals (a) wastes from mineral excavation.
1. The above descriptor also takes account of the proceeding classification	



Listed Waste Appraisal

Listed in Annexure 1 of GN R634	No
Descriptor	Not applicable
2. Not categorically listed in GN R634	•

Sampling and Laboratory Analysis

Sampler	Date	Comments		
WSP	February 2023	Representative samples were collected by W analysis.	/SP and subr	nitted for
Analytical Suite		Μ	atrix	
			Total	Leachate
Metals and me	etalloids, as listed in G	N R635		
Antimony, arse	nic, barium, boron, cadn	nium, chromium (total and hexavalent), cobalt,	\checkmark	\checkmark
copper, lead, m	nanganese, mercury, mo	lybdenum, nickel, selenium, vanadium, and	v	v
zinc				
Inorganics, as	listed in GN R635			
Chloride, nitrate	e, sulphate, and Total Di	ssolved Solids	N/A	\checkmark
Cyanide and flu	uoride		\checkmark	\checkmark
Organics, as l	isted in GN R635			
Benzene, tolue	ne, ethylbenzene, and x	ylenes (BTEX)	×	×
Petroleum hydr	ocarbons		×	N/A
Polychlorinated	l Biphenyls (PCB)		×	×
Polycyclic Aromatic Hydrocarbons (PAH)		×	N/A	
Volatile and Semi-Volatile Organic Compounds (VOC and SVOC)		×	×	
	listed in GN R635			
Aldrin + Dieldrii			×	×
DDT + DDD + I	DDE		×	×
2,4-D			×	×
Chlordane			×	×
Heptachlor	-		×	×
	neters, to support class	sification and disposal restriction appraisal.		
Calorific Value			×	×
Flashpoint			×	×
Mineral Oil			×	× ×
Moisture Conte	ent		×	× N/A
pH			×	IN/A ×
Total Organic C	. ,		~	~
••	y Parameters reasonal	•	**	
Aluminium, cale	cium, iron, magnesium, p	potassium, sodium, and phosphorous	×	×

Notes to Laboratory Analysis

1. N/A – Not applicable

2. As per GN R635, leachate was prepared using reagent water applicable to a mono-disposal scenario.

3. Whilst not all the substances above are likely to be present, the suite represents those determinants listed within the variously applicable Norms and Standards alongside other parameters that are expected.

4. It should be noted that pesticides have been omitted from the analytical suite as it is unreasonable to suspect their presence within the stream.

5. Laboratory certificate of analysis provided within **Appendix A** including details of any analysis unable to be completed based on the sample matrix.



Appraisal of Disposal Prohibitions

Restrictive Condition	Description
None identified	N/A

Waste Type Profiling for Landfill Disposal¹

Waste Type	Landfill Class
Туре 3	Class C

1. Refer to Appendix B for indicative profiling assessment.

 Type Profiling is based on consideration of total and leachate concentrations of substances published in Paragraph 6 of GN R635 and the appropriate landfill class is determined with reference to the Waste Acceptance Criteria in Paragraph 4 of GN R636.

3. While reference is made in GN R634 to the application of SANS 10234 classification to Waste Type Profiling, the then Department of Environmental Affairs (DEA) confirmed during stakeholder engagement that Hazard Statement Codes for transportation and handling are not intended to be utilised for Waste Type Profiling for landfill disposal.

SANS 10234 Classification

Hazardous	Non-Hazardous ✓

- 1. Refer to **Appendix C** for the quantitative screening classification.
- Assumptions in terms of the chemical form (speciation) in which elemental components of the waste stream are likely to occur have generally been conservative considering plausible thermodynamic and mineralogical assemblages.
- 3. Where applicable to the sample medium, results of laboratory analysis have been corrected according to sample-specific moisture content.
- 4. Where SANS 10234 guidance is either not available, unclear, or relatively incomplete, cognisance has been taken of European Regulation (EC) No. 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) that adopts, within the European community, the GHS as published by the United Nations Social and Economic Council.
- Hazard Statement Codes for the substances have been sourced from either the supplement to SANS 10234:2008 Edition 1, Table 3.1 of Annex VI of the CLP Regulations, or the European Chemicals Agency, Classification & Labelling Inventory Database.
- 6. Cognisance must be taken of the need to reclassify the waste every five years, or if the generation process changes or, otherwise, if more data becomes available.

Safety Data Sheet

Required	No		

Appendices

Appendix	Title
Α	Laboratory Analytical Certificates
В	Type Profiling Assessment (GN R635/636)
С	Screening Material Classification (SANS 10234)

¹ Subject to any prohibitions



Waiver

The Waste Management Summary Report (Report) has been prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf and at the request of Seriti Coal (Pty) Ltd (Client), to provide the Client with an understanding of the Relevant Documents.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report except where otherwise indicated.

Authorisation

Shameer Hareeparsad Principal Associate Shameer.Hareeparsad@wsp.com

Appendix A

LABORATORY ANALYTICAL CERTIFICATES

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Element Materials Technology Unit D2 & D5 9 Quantum Road Firgrove Business Park Somerset West 7130 South Africa

W: www.element.com

WSP Group Africa Building C, Knightsbridge 33 Sloane Street Bryanston Johannesburg Gauteng South Africa 2191

Attention :	Shameer Hareeparsad
Date :	3rd March, 2023
Your reference :	21465149
Our reference :	Test Report 23/107 Batch 1
Location :	Seriti New Largo
Date samples received :	21st February, 2023
Status :	Final report
Issue :	1

Ten samples were received for analysis on 21st February, 2023 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Analysis was undertaken at either Element Materials Technology UK, which is ISO 17025 accredited under UKAS (4225) or Element Materials Technology (SA) which is ISO 17025 accredited under SANAS (T0729) or a subcontract laboratory where specified.

NOTE: Under International Laboratory Accreditation Cooperation (ILAC), ISO 17025 (UKAS) accreditation is recognised as equivalent to SANAS (South Africa) accreditation.

Authorised By:

Jeanri Stevens Laboratory Supervisor

Inorganics Laboratory:

Aubrey Lindi Technical Signatory (Inorganics)

Please include all sections of this report if it is reproduced

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023			
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt					21/02/2023			21/02/2023			LOD/LOR	Units	Method No.
Antimony*	1	2	<1	<1	<1	1	3	3	2	2	<1	mg/kg	UK_TM30/UK_PM15
Arsenic*	6.9	6.5	1.4	6.1	4.5	5.3	4.1	3.8	8.8	11.5	<0.5	mg/kg	UK_TM30/UK_PM15
Barium*	116	150	99	99	170	571	136	121	472	388	<1	mg/kg	UK_TM30/UK_PM15
Cadmium*	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	UK_TM30/UK_PM15
Chromium*	30.1	28.2	6.9	25.1	28.3	42.4	88.1	48.8	42.1	47.0	<0.5	mg/kg	UK_TM30/UK_PM15
Cobalt*	11.5	91.5	1.1	13.0	16.6	18.0	17.7	17.3	24.4	15.9	<0.5	mg/kg	UK_TM30/UK_PM15
Copper*	45	53	14	49	46	15	28	18	51	56	<1	mg/kg	UK_TM30/UK_PM15
Lead* Manganese*	22 730	36 1197	21 74	26 62	28 450	7 1662	18 496	17 576	31 818	29 387	<5 <1	mg/kg mg/kg	UK_TM30/UK_PM15 UK_TM30/UK_PM15
Mercury*	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	mg/kg	UK TM30/UK PM15
Molybdenum*	1.3	5.2	0.1	0.2	0.7	1.3	0.8	0.8	1.8	2.2	<0.1	mg/kg	UK_TM30/UK_PM15
Nickel*	22.7	144.0	5.1	15.2	27.3	19.9	29.4	29.8	43.0	41.0	<0.7	mg/kg	UK_TM30/UK_PM15
Selenium*	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	UK_TM30/UK_PM15
Vanadium*	49	65	11	26	91	20	68	56	72	64	<1	mg/kg	UK_TM30/UK_PM15
Boron (Aqua Regia Soluble)*	2.87	6.40	12.36	6.42	10.91	0.54	<0.25	<0.25	1.08	1.86	<0.25	mg/kg	UK_TM30/UK_PM15
Zinc*	131	159	<5	142	105	56	110	120	197	130	<5	mg/kg	UK_TM30/UK_PM15
Fluoride	0.7	1.5	0.7	0.5	1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	malka	SA_TM27/SA_PM20
Hexavalent Chromium*	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	<0.3	<0.3	<0.3	< 0.3	mg/kg mg/kg	UK_TM38/UK_PM20
	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0		
Total Cyanide*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	UK_TM89/UK_PM45

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : ASLP (20:1) - Reagent Water

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and ad	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date			20/02/2023	20/02/2023		20/02/2023							
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt													
Dissolved Antimony*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Arsenic* Dissolved Barium*	<2.5 289	<2.5 257	<2.5 214	<2.5 229	<2.5 161	<2.5 272	<2.5 231	<2.5 274	<2.5 246	<2.5 272	<2.5 <3	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Boron*	289	237	15	229	24	50	69	63	88	72	<12	ug/l ug/l	UK_TM30/UK_PM14
Dissolved Cadmium*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	UK_TM30/UK_PM14
Dissolved Chromium*	<1.5	<1.5	<1.5	<1.5	<1.5	2.1	<1.5	<1.5	1.9	2.7	<1.5	ug/l	UK_TM30/UK_PM14
Dissolved Cobalt*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Copper*	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	UK_TM30/UK_PM14
Dissolved Lead*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	UK_TM30/UK_PM14
Dissolved Manganese*	<2	<2	<2	<2	<2	34	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Mercury*	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	ug/l	UK_TM30/UK_PM14
Dissolved Molybdenum*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Nickel*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Selenium* Dissolved Vanadium*	<3 1.7	<3 <1.5	<3 <1.5	<3 2.4	<3 <1.5	<3 <1.5	<3 <1.5	<3 3.2	<3 2.0	<3 3.9	<3 <1.5	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Zinc*	7	11	10	11	14	20	14	17	12	3.9 18	<1.5	ug/l ug/l	UK_TM30/UK_PM14
	,		10		14	20			12	10	-0	ugn	
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Chloride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	0.4	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Sulphate	2.9	1.9	1.2	3.1	0.8	2.7	2.9	2.4	2.7	2.5	<0.5	mg/l	SA_TM27/SA_PM0
Nitrate as N	0.07	<0.05	<0.05	0.11	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	mg/l	SA_TM27/SA_PM0
Total Cyanide*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	UK_TM89/UK_PM0
Hexavalent Chromium*	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	UK_TM38/UK_PM0
Total Dissolved Solids	<35	<35	<35	38	<35	65	36	102	136	84	<35	mg/l	SA_TM20/SA_PM80
pH	6.99	6.98	7.91	8.58	7.36	7.78	7.28	8.65	8.13	7.88	<2.00	pH units	SA_TM19/SA_PM0
			-			-	-						

Client Name:	WSP Group Africa
Reference:	21465149
Location:	Seriti New Largo
Contact:	Shameer Hareeparsad

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason							
	No deviating sample report results for job 23/107												

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/107

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation. Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/107

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
SA_TM19	Determination of pH by bench pH meter	SA_PM0	No preparation is required.			AR	No
SA_TM20	Modified BS 1377-3: 1990 Gravimetric determination of Total Dissolved Solids	SA_PM80	A 20:1 ratio of leaching fluid to as received soil, is leached for 18 hours. The client can choose to use any of the following leaching fluids a) deionised water b) pH5 c) pH 5/pH2.9 depending on pH of sample d) pH9.2			AR	No
SA_TM27	Major ions by lon Chromatography	SA_PM0	No preparation is required.				
SA_TM27	Major ions by lon Chromatography	SA_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a orbital shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a orbital shaker.			AD	Yes
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				No
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.				Yes
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM0	No preparation is required.				No
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.				Yes
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM0	No preparation is required.				No
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.				Yes

Appendix B

TYPE PROFILING

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11.



Waste Type Profiling and Disposal Prohibition Appraisal Based on National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN R635 of 2013) together with National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)

Source of Waste: Waste Matrix (Liquid / Solid):	-	oal (Pty) Ltd,	N4 and N12 hig	ghways between Bronkh	orstspruit and eMalahleni tow	ns, Sample A	- Sandstone	App	raisal Date:	May 2023	
Leachate Preparation (Solids Only)	Non-Putresci		posal): Reagent on (ppm) - So		Waste Type		Concentra	tion (ppm) - Leacha	te/Liquid	Waste Type
Substance	тсто	TCT1	TCT2	Assessed Concentration	(based on TCTs only; subject to LCTs)		LCT1	LCT2	LCT3	Assessed Concentration	(based on LCTs only; subject to TCTs)
Metal Ions Arsenic	5.8	500	2000	6.9	Туре 3	0.01	0.5	1	4		
Boron	150	15000	60000	2.87	Type 4	0.5	25	50	200	0.02	Type 4
Barium Cadmium	62.5 7.5	6250 260	25000 1040	116	Type 3	0.7	35 0.15	70 0.3	280 1.2	0.289	Type 4
Cobalt	50	5000	20000	11.5	Type 4	0.005	25	50	200		
Chromium Chromium (Hexavalent)	46000 6.5	800000	-	30.1	Type 4	0.1 0.05	5 2.5	10	40 20		
Copper	16	500 19500	2000 78000	45	Type 3	2	100	200	800		
Mercury	0.93 1000	160	640	720	True 4	0.006	0.3	0.6	2.4 200		
Manganese Molybdenum	40	25000 1000	100000 4000	730 1.3	Type 4 Type 4	0.5	3.5	7	200		
Nickel	91	10600	42400	22.7	Type 4	0.07	3.5	7	28 4		
Lead Antimony	20 10	1900 75	7600 300	22	Type 3 Type 4	0.01 0.02	0.5	2	8		
Selenium	10	50	200	10	T (0.01	0.5	1	4	0.0017	
Vanadium Zinc	150 240	2680 160000	10720 640000	49 131	Type 4 Type 4	0.2	10 250	20 500	80 2000	0.0017 0.007	Type 4 Type 4
Inorganic Anions											
Total Dissolved Solids	-	-	-		Applicable	1000	12500	25000	100000		
Chloride Sulphate	-	-	-		t Applicable t Applicable	300 250	15000 12500	30000 25000	120000 100000	2.9	Type 4
Nitrate	-	-	-		Applicable	11	550	1100	4400		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Fluoride	100	10000	40000	0.7	Type 4	1.5	75	150	600		
Cyanide Organics	14	10500	42000			0.07	3.5	7	28		
Benzene	-	10	40			-	0.01	0.02	0.08		
Benzo(a)pyrene Carbon tetrachloride	-	1.7	6.8 16			-	0.035	0.07	0.28		
Chlorobenzene	-	8800	35200			-	5	10	40		
Chloroform 2-Chlorophenol	-	700 2100	2800 8400			-	15 15	30 30	120 120		
Bis(2-ethylhexyl)phthalate	-	40	160			-	0.5	1	4		
1,2-Dichlorobenzene 1,4-Dichlorobenzene	-	31900 18400	127600 73600			-	5 15	10 30	40 120		
1,2-Dichloroethane	-	3.7	14.8			-	1.5	3	120		
1,1-Dichloroethene 1,2-Dichloroethene	-	150 3750	600 15000			-	0.35	0.7	2.8 20		
Dichloromethane	-	16	64			-	0.25	0.5	20		
2,4-Dichlorophenol	-	800	3200			-	10	20	80		
2,4-Dinitrotoluene Ethylbenzene	-	5.2 540	20.8 2160			-	0.065 3.5	0.13	0.52 28		
Formaldehyde	-	2000	8000			-	25	50	200		
Hexachlorobutadiene Methyl Ethyl Ketone (2-Butanone)	-	2.8 8000	5.4 32000			-	0.03	0.06 200	0.24 800		
Methyl Tertiary Butyl Ether	-	1435	5740			-	2.5	5	20		
Nitrobenzene Total PAHs	-	45 50	180 200			-	1	2	8	Not A	pplicable
>C6-C9	-	650	2600			-	-	-	-		pplicable
>C10-C36	-	10000	40000			-	-	-	-	Not A	pplicable
Phenol Polychlorinated Biphenyls (PCBs)	-	560 12	2240 48			-	7 0.025	14 0.05	56 0.2		
Styrene	-	120	480			-	1	2	8		
1,1,1,2-Tetrachloroethane 1,1,2.2-Tetrachloroethane	-	400 5	1600 20			-	5 0.65	10	40 5.3		
Tetrachloroethene	-	200	800				0.25	0.5	2		
Toluene Trichlorobenzenes (Sum)	-	1150 3300	4600 13200			-	35 3.5	70	280 28		
1,1,1-Trichloroethane	-	1200	4800			-	15	30	120		
1,1,2-Trichloroethane Trichloroethene	-	48 11600	192 46400			-	0.06	1	4		
2,4,6-Trichlorophenol	-	1770	7080			-	10	20	80		
Vinyl chloride Xylenes (Sum)	-	1.5 890	6 3560			-	0.015	0.03	0.12 200		
Pesticides		690	3500				23	50	200		
Aldrin + Dieldrin	0.05	1.2	4.8			-	0.015	0.03	0.03		
DDT + DDD + DDE 2,4-Dichlorophenoxyacetic Acid (2,4-D)	0.05	50 120	200 480			-	1	2 3	2 3		
Chlordane	0.05	4	16			-	0.05	0.1	0.1		
Heptachlor Supplementary	0.05 Considerat	1.2 tion for Con	4.8 firmation of	Type 4 Waste Ty	pe		0.015	0.03	0.03 No	tes	
			ı (mg/kg), un	less stated	Satisfy					st conservative type cal otal (TCT) or Leachable	
Organics		Threshold		Assessed Concentration	Type 4	2. Where a	number of we	aste types ar	e applicable	for any given substance	(i.e. the consideration
			CT0 & LCT0):	As above	No					file), the final waste typ ta simultaneously.	e is determined by
		entrations <to< td=""><td>CT0 & LCT0):</td><td>As above</td><td>Yes</td><td>3. Only whe</td><td>re laborator</td><td>y analysis ha</td><td>is resulted in</td><td>positive identification</td><td>of substances (i.e. above</td></to<>	CT0 & LCT0):	As above	Yes	3. Only whe	re laborator	y analysis ha	is resulted in	positive identification	of substances (i.e. above
Total Organic Carbon BTEX (Sum)	(%)	6	5		To Clarify To Clarify						ive TCTs and LCTs (i.e. s of detection have been
BIEX (Sum) Polychlorinated Biphenyls (PCBs)		1			To Clarify To Clarify	assumed to	be absent).				-
Mineral Oil (>C10-C40)		500			To Clarify					ig of liquid wastes is un iquid media to the LCT	
Pesticides		0.05				liquid waste	s cannot pro	wide a leach	ate extract fo	or analysis.	
Aldrin + Dieldrin DDT + DDD + DDE		0.05			To Clarify To Clarify						
2,4-Dichlorophenoxyacetic Acid (2,4-D)		0.05			To Clarify						
Chlordane		0.05			To Clarify						
Heptachlor Overall Screened Waste Type (<i>notwithstand</i>	ing notential	0.05 lisposal prohib	itions see hole	w)	To Clarify	Category	Landfill (C	N R636 of 2	2013)		
	ng potential a	mposal pronib	mons, see belo								
Type 3 Waste						Class	\mathbf{C} / \mathbf{G}	LB+			
Physicochemical Disposal Prohibition	IS (notwithstand	ling other potent	tial restrictions a	ssociated with Waste Typ	e)						
PCBs > 50ppm		PCBs (ppm):			Not assessed or less than labo	oratory limit o	f detection				
Explosive, corrosive or oxidising according t pH <6 or >12	o SANS 10234	4 pH:		No	Not applicable Not assessed						
Flashpoint <61° Celsius	F	lashpoint (°C):			Not assessed						
Moisture Content > 40% Hazardous with Calorific Value >10MJ/kg	Moisture	CV (MU/rg)		No	Not assessed or 0% Not applicable						
mazaruous with Calorine value >10MJ/kg		CV (MJ/kg): TOC (%):		No No	Not applicable						
Hazardous with Total Organic Carbon >6%											
Hazardous with Total Organic Carbon >6% Brine (high salt content) >5% TDS Leachable TDS >100 000mg/l		TDS (%): TDS (mg/l):	N/A	N/A No	Not applicable to a solid was Not applicable	te					

No
 Not applicable

 End of Waste Type Profiling and Disposal Prohibition Appraisal

Appendix C

CLASSIFICATION

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11.



WSP Reference: 41105637	Prepared For: Seriti Coal (Pty) Ltd
Generator: New Largo Coal (Pty) Ltd	Assessment Date: May 2023
Source Address: N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	
Production Process: Sample A - Sandstone	

General Appearance	Classification Summary
Soil	Not Hazardous (General)

Potential Hazard Statement Codes of Relevance

Composition & Quantitative Classification

Composition assessed in general accordance with the following hierarchy:

1. South African National Standard, Globally Harmonised System of Classification and Labelling of Chemicals (GHS), SANS 10234:2019, Edition 2

2. European Regulation (EC) No. 1272/2008, 'Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation)

Hazard Statement Codes for individual compounds are sourced from:

1. Supplement to SANS 10234:2008 Edition 1

2. Table 3.1 of Annex VI of the CLP Regulations

3. European Chemicals Agency, Classification & Labelling Inventory Database

4. Product (Material) Safety Data Sheet

Where relevant, recorded concentrations have been converted from dry weight values to account for the recorded moisture content of material.

Quantitative screening assessment of individual Hazard Statement Codes presented on the following pages.

Hazard Statement	Hazard Statement	Generic Cut- Off Value	Off Value	Generic Cut-Off Value and Test Comments	Assessment Concentration	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
Code		(%)	(ppm)	PHYSICAL HAZARD	(ppm) STATEMENTS			
				If >0% then classified under H200 unless further	No substances			
H200	Unstable explosive	0	0	information and/or testing proves otherwise	identified	Not applicable	No	
H201	Explosive; mass explosion hazard	0	0	If >0% then classified under H201 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H202	Explosive; severe projection hazard	0	0	If >0% then classified under H202 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H203	Explosive; fire, blast or projection hazard	0	0	If >0% then classified under H203 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H204	Fire or projection hazard	0	0	If >0% then classified under H204 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H205	May mass explode in fire	0	0	If >0% then classified under H205 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H220	Extremely flammable gas	0	0	If >0% then classified under H220 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H221	Flammable gas	0	0	If >0% then classified under H221 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H222	Extremely flammable aerosol	0	0	If >0% then classified under H222 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H223	Flammable aerosol	0	0	If >0% then classified under H223 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H224	Extremely flammable liquid and vapour	0	0	If >0% then classified under H224 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H225	Highly flammable liquid and vapour	0	0	If >0% then classified under H225 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H226	Flammable liquid and vapour	0	0	If >0% then classified under H226 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H227	Combustible liquid	0	0	If >0% then classified under H227 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H228	Flammable solid	0	0	If >0% then classified under H228 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H229	Pressurised container: may burst if heated	0	0	Relevant only for pressurised containers	Not applicable	Not applicable	No	
H230	May react explosively even in the absence of air	0	0	If >0% then classified under H230 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H231	May react explosively even in the absence of air at elevated pressure and/or temperature	0	0	If >0% then classified under H231 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H240	Heating may cause an explosion	0	0	If >0% then classified under H240 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H241	Heating may cause a fire or explosion	0	0	If >0% then classified under H241 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H242	Heating may cause a fire	0	0	If >0% then classified under H242 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)
H250	Catches fire spontaneously if exposed to air	0	0	If >0% then classified under H250 unless further information and/or testing proves otherwise	65.50	Potential to catch fire spontaneously if exposed to air: detailed assessment required	Not likely at recorded concentration
H251	Self-heating; may catch fire	0	0	If >0% then classified under H251 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
H252	Self-heating in large quantities; may catch fire	0	0	If >0% then classified under H252 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
		0	0	If >0% then classified under H260 unless further information and/or testing proves otherwise	32.75	Assessment, see below	Substance- specific assessments: see below
		0.0076	76.1	<u>Element-specific assessment</u> Concentration of aluminium phosphide required to evolve sufficient volume of phosphine in contact with water to potentially render hazardous; based on stoichiometry	No analysis for aluminium	Not applicable	No
H260	In contact with water releases flammable gases that may ignite spontaneously	0.108	1076	<i>Element-specific assessment</i> Concentration of free magnesium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for magnesium	Not applicable	No
		0.346	3463	<u>Element-specific assessment</u> Concentration of free potassium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for potassium	Not applicable	No
		0.204	2036	<u>Element-specific assessment</u> Concentration of free sodium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for sodium	Not applicable	No
		0	0	If >0% then classified under H261 unless further information and/or testing proves otherwise	58.00	Assessment, see below	Substance- specific assessments: see below
1261	In contact with water	0.608	6082	<u>Element-specific assessment</u> Concentration of free barium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	116.00	Unlikely to generate hazardous volume of hydrogen	No
H261	releases flammable gas	0.177	1775	<u>Element-specific assessment</u> Concentration of free calcium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for calcium	Not applicable	No

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
		0	0	<u>Compound-specific assessment</u> Ferrosilicon may evolve sufficient hydrogen in contact with water to render hazardous; based on ratio of iron:silicon	Ferrosilicon not identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H270	May cause or intensify fire; oxidiser	0	0	If >0% then classified under H270 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H271	May cause fire or explosion; strong oxidiser	0	0	If >0% then classified under H271 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H272	May intensify fire; oxidiser	0	0	If >0% then classified under H272 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H280	Contains gas under pressure; may explode if heated	0	0	If >0% then classified under H280 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H281	Contains refrigerated gas; may cause cryogenic burns or injury	0	0	If >0% then classified under H281 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H290	May be corrosive to metals	0	0	If contributing substance >0% then conservatively classified under H290 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
				HEALTH HAZARD S	STATEMENTS			
H300	Fatal if swallowed	1	10000	If cumulative/additive concentrations of contributing substances >1% then conservatively classified under H300 (Category 1 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H301	Toxic if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H301 (Category 3 Acute Toxicity: Oral); pending further assessment	6.90	Further assessment not necessary	No	
H302	Harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H302 (Category 4 Acute Toxicity: Oral); pending further assessment	2.87	Further assessment not necessary	No	
H303	May be harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H303 (Category 5 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H304	May be fatal if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% then conservatively classified under H304 (Aspiration Hazard, Category 1); pending further assessment	No substances identified	Not applicable	No	
H305	May be harmful if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% classified under H305 (Aspiration Hazard, Category 2); pending further assessment	No substances identified	Not applicable	No	
H310	Fatal in contact with skin	1	10000	If cumulative/additive >1% classified under H310 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H311	Toxic in contact with skin	1	10000	If individual substance >1% classified under H311 (Category 3 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H312	Harmful in contact with skin	1	10000	If individual substance >1% classified under H312 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H313	May be harmful in contact with skin	1	10000	If individual substance >1% classified under H313 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H314	Causes severe skin burns and eye damage	1	10000	If cumulative/additive >1% classified under H314 (Category 1 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
	bu ns and cyc danlage	≤2 pH U	nits ≥ 11.5	<u>pH-specific assessment</u> If ≤ 2 or ≥ 11.5 pH then classified as corrosive	pH not determined	Not applicable	Unclarified	
H315	Causes skin irritation	1	10000	If cumulative/additive >1% classified under H315 (Category 3 Skin Corrosion/Irritant), >10% then Category 2; pending further assessment	116.00	Further assessment not necessary	No	
H316	Causes mild skin irritation	10	100000	If cumulative/additive >10% classified under H316 (Category 3 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
H317	May cause an allergic skin reaction	0.1	1000	If individual substance ≥0.1% classified under H317 (Category 1 Skin Sensitisation); pending further assessment	22.70	Further assessment not necessary	No	
H318	Causes serious eye damage	1	10000	If cumulative/additive >1% classified under H318 (Category 2 Skin/Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H319	Causes serious eye irritation	10	100000	If cumulative/additive >10% classified under H319 (Category 2 Eye Sensitisation); pending further assessment	116.00	Further assessment not necessary	No	
H320	Causes eye irritation	10	100000	If cumulative/additive >10% classified under H320 (Category 2 Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H330	Fatal if inhaled	1	10000	If cumulative/additive >1% classified under H330 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H331	Toxic if inhaled	1	10000	If individual substance >1% classified under H331 (Category 3 Acute Toxicity); pending further assessment	6.90	Further assessment not necessary	No	
H332	Harmful if inhaled	1	10000	If individual substance >1% classified under H332 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н333	May be harmful if inhaled	1	10000	If individual substance >1% classified under H333 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	0.1	1000	If individual substance >0.1% classified under H334 (Category 1 Respiratory Sensitisation); pending further assessment	11.50	Further assessment not necessary	No	
Н335	May cause respiratory irritation	20	200000	If cumulative/additive >20% classified under H335 under Generic Limits; pending further assessment	116.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H336	May cause drowsiness or dizziness	20	200000	If cumulative/additive >20% classified under H336 under Generic Limits; pending further assessment	No substances identified	Not applicable	No	
H340	May cause genetic defects	0.1	1000	If individual substance >0.1% classified under H340 (Category 1 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H341	Suspected of causing genetic defects	1	10000	If individual substance >1% classified under H341 (Category 2 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H350	May cause cancer	0.1	1000	If individual substance >0.1% classified under H350 (Category 1 Carcinogen); pending further assessment	No substances identified	Not applicable	No	
H351	Suspected of causing cancer	0.1	1000	If individual substance >0.1% classified under H351 (Category 2 Carcinogen); pending further assessment	22.70	Further assessment not necessary	No	
H360	May damage fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H360 (Category 1 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361	Suspected of damaging fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H361 (Category 2 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361d	Suspected of damaging the unborn child	0.1	1000	If individual substance >0.1% classified under H361d; pending further assessment	No substances identified	Not applicable	No	
Н362	May cause harm to breast-fed children	0.1	1000	If individual substance >0.1% classified under H362 (Additional Category Teratogen); pending further assessment	No substances identified	Not applicable	No	
H370	Causes damage to organs	1	10000	If individual substance >1% classified under H370 (Category 1 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H371	May cause damage to organs	1	10000	If individual substance >1% classified under H371 (Category 2 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H372	Causes damage to organs through prolonged or repeated exposure	1	10000	If individual substance >1% classified under H372 (Category 1 Repeat Exposure); pending further assessment	22.70	Further assessment not necessary	No	
11272	May cause damage to organs through	1	10000	If individual substance >1% classified under H373 (Category 2 Repeat Exposure); pending further assessment	No substances identified	Not applicable	No	
H3/3	prolonged or repeated exposure	0.005	50	<u>PCB-specific assessment</u> If PCBs are present >0.005% then classified hazardous under H373	No analysis for PCBs	Not applicable	Unclarified: not anticipated	
	ENVIRONMENTAL HAZARD STATEMENTS							
H400	Very toxic to aquatic life	1	10000	If cumulative/additive >1% classified under H400 (Category 1 Acute Aquatic Toxicity); pending further assessment	137.90	Further assessment not necessary	No	
H401	Toxic to aquatic life	25	250000	If modified cumulative/additive >25% classified under H401 (Category 2 Acute Aquatic Toxicity); pending further assessment	1379.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H402	Harmful to aquatic life	25	250000	If modified cumulative/additive >25% classified under H402 (Category 3 Acute Aquatic Toxicity); pending further assessment	13790.00	Further assessment not necessary	No	
H410	Very toxic to aquatic life with long lasting effects	1	10000	If cumulative/additive >1% classified under H410 (Category 1 Chronic Aquatic Toxicity); pending further assessment	137.90	Further assessment not necessary	No	
H411	Toxic to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H411 (Category 2 Chronic Aquatic Toxicity); pending further assessment	1379.00	Further assessment not necessary	No	
H412	Harmful to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H412 (Category 3 Chronic Aquatic Toxicity); pending further assessment	13813.70	Further assessment not necessary	No	
H413	May cause long lasting harmful effects to aquatic life	25	250000	If modified cumulative/additive >25% classified under H413 (Category 4 Chronic Aquatic Toxicity); pending further assessment	173.10	Further assessment not necessary	No	
H420	Harms public health and the environment by destroying ozone in the upper atmosphere	0.1	1000	If individual substance >0.1% classified under H420 (Category 1). Substances based on Annexes to the Montreal Protocol.	No substances identified	Not applicable	No	
Assumptions	and Comments							

1. Acute Toxicity Estimates (ATE) have not been derived from LD50 data or conversion factors presented in SANS 10234; screening classification has been based on generic cut-off values. Where more detailed assessment is recommended, appropriate LD50 should be sourced based on current available data.

2. Ecotoxicity for Category 1 Acute and Chronic Hazards have assumed 1% threshold and additive compounds rather than utilisation of Weighting Factor/s presented in SANS 10234. Where more detailed assessment is recommended, this should follow the mixture-specific principles defined in SANS 10234.

3. Classification does not include European Union (EU), or other territory-specific, Hazard Statement Codes that may be applicable outside of the Republic of South Africa.

4. Only where data is presented, or where laboratory analysis has resulted in positive identification of substances (i.e. above laboratory limits of detection), have the applicable Hazard Statement Codes been appraised (i.e. substances determined to be at concentrations less than laboratory limits of detection have been assumed to be absent).

5. Unless exact speciation has been established through detailed analysis, classification has been based on reasonable assumptions of substances most-likely present based on expected behaviour within the material. It is recognised that this may not be applicable in all instances and, for clarity, a list of the individual substances appraised where assumptions have been made are listed below.

6. Where laboratory analysis has reported concentrations on a dry weight basis these have been converted to take account of sample moisture content using the formula:

Wet Weight Concentration = Dry Weight Concentration x ((100 - % moisture content)/100).

7. Where assessment has been undertaken on liquids, it has been assumed that 1-litre (volume) is equivalent to 1-kg (mass).

8. For additional details in respect of the individual substances that may render any given material type as hazardous, reference should be made to the appropriate Safety Data Sheet (SDS) which takes account of this classification or, if an SDS has not been prepared, the appropriate report relevant for this classification.

9. To the best of our knowledge, the information contained herein is accurate; however, WSP assumes no liability whatsoever for its accuracy or completeness. The classification of any material, and its appropriate management, remains the responsibility of the generator. All materials may present unknown hazards. Although certain hazards are described herein, it cannot be guaranteed that these are the only hazards that exist, or that these have been recognised in full.

List of Assumed Substances, where necessary

Antimony, Arsenic, Barium, Boron, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Vanadium, Zinc,



WASTE MANAGEMENT SUMMARY REPORT

WASTE IDENTIFICATION	Sample B – Shale
SOURCE	New Largo Coal (Pty) Ltd
DATE OF ASSESSMENT	March 2024

Relevant Regulations and Standards

- ✓ National Environmental Management: Waste Act (NEM: WA, 2008)
- ✓ National Environmental Management: Waste Amendment Act (NEM: WAA, 2014)
- ✓ National Environmental Management Laws Amendment Act (NEMLAA, 2022)
- ✓ Waste Classification and Management Regulations (GN R634 of 2013)
- ✓ Regulations for Hazardous Chemical Agents (GG 44366, 2021)
- ✓ National Norms and Standards for the Assessment of Waste to Landfill Disposal (GN R635 of 2013)
- ✓ National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)
- ✓ South African National Standard (SANS) 10234:2019, Globally Harmonised System of Classification and Labelling of Chemicals (GHS) (SANS 10234)
- ✓ South African National Standard (SANS) 11014:2010, Safety Data Sheet for Chemical Products Content and Order of Sections (SANS 11014)

Scope

Included	Element	Description
\checkmark	Defined and Listed Waste Appraisal	Desktop appraisal of whether the waste is defined under Schedule 3 of the NEM: WAA and/or listed in Annexure 1 of GN R634. Wastes either defined or listed do not necessarily require classification in terms of SANS 10234.
\checkmark	Appraisal of Disposal Prohibitions	Determination of possible disposal prohibitions in terms of GN R636.
\checkmark	Waste Type Profiling for Landfill Disposal	Profiling in accordance with GN R635 and/or Waste Acceptance Criteria as detailed in GN R636.
\checkmark	Classification	Quantitative classification in broad accordance with SANS 10234.
×	Safety Data Sheet	A Safety Data Sheet (SDS) is required for all hazardous waste (excluding Health Care Risk Waste) in terms of GN R634.

Waste Description

Process Origin	Chemical Inputs	Physical Characteristics
N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	None known	Solid

Defined Waste Appraisal

Listed in Schedule 3 of NEM: WAA	Yes
Descriptor	Category A: Wastes resulting from exploration, mining quarrying, and physical and chemical treatment of minerals (a) wastes from mineral excavation.
1. The above descriptor also takes ad	count of the proceeding classification



Listed Waste Appraisal

Listed in Annexure 1 of GN R634	No
Descriptor	Not applicable
2. Not categorically listed in GN R634	1

Sampling and Laboratory Analysis

Sampler	Date	Comments		
WSP	February 2023	Representative samples were collected by V analysis.	VSP and subr	nitted for
Analytical Suit	e		М	atrix
			Total	Leachate
Metals and me	talloids, as listed in G	N R635		
Antimony, arsei	nic, barium, boron, cadn	nium, chromium (total and hexavalent), cobalt,	\checkmark	\checkmark
copper, lead, m	v	v		
zinc				
Inorganics, as	listed in GN R635			
Chloride, nitrate	e, sulphate, and Total Di	ssolved Solids	N/A	\checkmark
Cyanide and flu	ioride		\checkmark	\checkmark
Organics, as li	sted in GN R635			
Benzene, toluer	ne, ethylbenzene, and x	ylenes (BTEX)	×	×
Petroleum hydr	ocarbons		×	N/A
Polychlorinated	Biphenyls (PCB)		×	×
Polycyclic Arom	×	N/A		
Volatile and Se	mi-Volatile Organic Con	npounds (VOC and SVOC)	×	×
-	listed in GN R635			
Aldrin + Dieldrin			×	×
DDT + DDD + [DDE		×	×
2,4-D			×	×
Chlordane			×	×
Heptachlor			×	×
	neters, to support clas	sification and disposal restriction appraisal.		
Calorific Value			×	×
Flashpoint			×	×
Mineral Oil			×	×
Moisture Conte	nt		×	×
рН			√ ∽	N/A
Total Organic C	. ,		×	×
	y Parameters reasonal			
Aluminium, calo	cium, iron, magnesium, j	potassium, sodium, and phosphorous	×	×

Notes to Laboratory Analysis

1. N/A – Not applicable

2. As per GN R635, leachate was prepared using reagent water applicable to a mono-disposal scenario.

3. Whilst not all the substances above are likely to be present, the suite represents those determinants listed within the variously applicable Norms and Standards alongside other parameters that are expected.

4. It should be noted that pesticides have been omitted from the analytical suite as it is unreasonable to suspect their presence within the stream.

5. Laboratory certificate of analysis provided within **Appendix A** including details of any analysis unable to be completed based on the sample matrix.



Appraisal of Disposal Prohibitions

Restrictive Condition	Description
None identified	N/A

Waste Type Profiling for Landfill Disposal¹

Waste Type	Landfill Class
Туре 3	Class C

1. Refer to Appendix B for indicative profiling assessment.

 Type Profiling is based on consideration of total and leachate concentrations of substances published in Paragraph 6 of GN R635 and the appropriate landfill class is determined with reference to the Waste Acceptance Criteria in Paragraph 4 of GN R636.

3. While reference is made in GN R634 to the application of SANS 10234 classification to Waste Type Profiling, the then Department of Environmental Affairs (DEA) confirmed during stakeholder engagement that Hazard Statement Codes for transportation and handling are not intended to be utilised for Waste Type Profiling for landfill disposal.

SANS 10234 Classification

Hazardous	Non-Hazardous ✓

- 1. Refer to **Appendix C** for the quantitative screening classification.
- Assumptions in terms of the chemical form (speciation) in which elemental components of the waste stream are likely to occur have generally been conservative considering plausible thermodynamic and mineralogical assemblages.
- 3. Where applicable to the sample medium, results of laboratory analysis have been corrected according to sample-specific moisture content.
- 4. Where SANS 10234 guidance is either not available, unclear, or relatively incomplete, cognisance has been taken of European Regulation (EC) No. 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) that adopts, within the European community, the GHS as published by the United Nations Social and Economic Council.
- Hazard Statement Codes for the substances have been sourced from either the supplement to SANS 10234:2008 Edition 1, Table 3.1 of Annex VI of the CLP Regulations, or the European Chemicals Agency, Classification & Labelling Inventory Database.
- 6. Cognisance must be taken of the need to reclassify the waste every five years, or if the generation process changes or, otherwise, if more data becomes available.

Safety Data Sheet

Required	No		

Appendices

Appendix	Title
Α	Laboratory Analytical Certificates
В	Type Profiling Assessment (GN R635/636)
С	Screening Material Classification (SANS 10234)

¹ Subject to any prohibitions



Waiver

The Waste Management Summary Report (Report) has been prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf and at the request of Seriti Coal (Pty) Ltd (Client), to provide the Client with an understanding of the Relevant Documents.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report except where otherwise indicated.

Authorisation

Shameer Hareeparsad Principal Associate Shameer.Hareeparsad@wsp.com

Appendix A

LABORATORY ANALYTICAL CERTIFICATES

CONFIDENTIAL



Element Materials Technology Unit D2 & D5 9 Quantum Road Firgrove Business Park Somerset West 7130 South Africa

W: www.element.com

WSP Group Africa Building C, Knightsbridge 33 Sloane Street Bryanston Johannesburg Gauteng South Africa 2191

Attention :	Shameer Hareeparsad
Date :	3rd March, 2023
Your reference :	21465149
Our reference :	Test Report 23/107 Batch 1
Location :	Seriti New Largo
Date samples received :	21st February, 2023
Status :	Final report
Issue :	1

Ten samples were received for analysis on 21st February, 2023 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Analysis was undertaken at either Element Materials Technology UK, which is ISO 17025 accredited under UKAS (4225) or Element Materials Technology (SA) which is ISO 17025 accredited under SANAS (T0729) or a subcontract laboratory where specified.

NOTE: Under International Laboratory Accreditation Cooperation (ILAC), ISO 17025 (UKAS) accreditation is recognised as equivalent to SANAS (South Africa) accreditation.

Authorised By:

Jeanri Stevens Laboratory Supervisor

Inorganics Laboratory:

Aubrey Lindi Technical Signatory (Inorganics)

Please include all sections of this report if it is reproduced

Client Name:				
Reference:				
Location:				
Contact:				
EMT Job No:				

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023			
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt					21/02/2023			21/02/2023			LOD/LOR	Units	Method No.
Antimony*	1	2	<1	<1	<1	1	3	3	2	2	<1	mg/kg	UK_TM30/UK_PM15
Arsenic*	6.9	6.5	1.4	6.1	4.5	5.3	4.1	3.8	8.8	11.5	<0.5	mg/kg	UK_TM30/UK_PM15
Barium*	116	150	99	99	170	571	136	121	472	388	<1	mg/kg	UK_TM30/UK_PM15
Cadmium*	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	UK_TM30/UK_PM15
Chromium*	30.1	28.2	6.9	25.1	28.3	42.4	88.1	48.8	42.1	47.0	<0.5	mg/kg	UK_TM30/UK_PM15
Cobalt*	11.5	91.5	1.1	13.0	16.6	18.0	17.7	17.3	24.4	15.9	<0.5	mg/kg	UK_TM30/UK_PM15
Copper*	45	53	14	49	46	15	28	18	51	56	<1	mg/kg	UK_TM30/UK_PM15
Lead* Manganese*	22 730	36 1197	21 74	26 62	28 450	7 1662	18 496	17 576	31 818	29 387	<5 <1	mg/kg mg/kg	UK_TM30/UK_PM15 UK_TM30/UK_PM15
Mercury*	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	mg/kg	UK TM30/UK PM15
Molybdenum*	1.3	5.2	0.1	0.2	0.7	1.3	0.8	0.8	1.8	2.2	<0.1	mg/kg	UK_TM30/UK_PM15
Nickel*	22.7	144.0	5.1	15.2	27.3	19.9	29.4	29.8	43.0	41.0	<0.7	mg/kg	UK_TM30/UK_PM15
Selenium*	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	UK_TM30/UK_PM15
Vanadium*	49	65	11	26	91	20	68	56	72	64	<1	mg/kg	UK_TM30/UK_PM15
Boron (Aqua Regia Soluble)*	2.87	6.40	12.36	6.42	10.91	0.54	<0.25	<0.25	1.08	1.86	<0.25	mg/kg	UK_TM30/UK_PM15
Zinc*	131	159	<5	142	105	56	110	120	197	130	<5	mg/kg	UK_TM30/UK_PM15
Fluoride	0.7	1.5	0.7	0.5	1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	malka	SA_TM27/SA_PM20
Hexavalent Chromium*	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	<0.3	<0.3	<0.3	< 0.3	mg/kg mg/kg	UK_TM38/UK_PM20
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0		
Total Cyanide*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	UK_TM89/UK_PM45

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : ASLP (20:1) - Reagent Water

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and ad	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date			20/02/2023	20/02/2023		20/02/2023							
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt													
Dissolved Antimony*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Arsenic* Dissolved Barium*	<2.5 289	<2.5 257	<2.5 214	<2.5 229	<2.5 161	<2.5 272	<2.5 231	<2.5 274	<2.5 246	<2.5 272	<2.5 <3	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Boron*	289	237	15	229	24	50	69	63	88	72	<12	ug/l ug/l	UK_TM30/UK_PM14
Dissolved Cadmium*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	UK_TM30/UK_PM14
Dissolved Chromium*	<1.5	<1.5	<1.5	<1.5	<1.5	2.1	<1.5	<1.5	1.9	2.7	<1.5	ug/l	UK_TM30/UK_PM14
Dissolved Cobalt*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Copper*	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	UK_TM30/UK_PM14
Dissolved Lead*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	UK_TM30/UK_PM14
Dissolved Manganese*	<2	<2	<2	<2	<2	34	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Mercury*	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	ug/l	UK_TM30/UK_PM14
Dissolved Molybdenum*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Nickel*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Selenium* Dissolved Vanadium*	<3 1.7	<3 <1.5	<3 <1.5	<3 2.4	<3 <1.5	<3 <1.5	<3 <1.5	<3 3.2	<3 2.0	<3 3.9	<3 <1.5	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Zinc*	7	11	10	11	14	20	14	17	12	3.9 18	<1.5	ug/l ug/l	UK_TM30/UK_PM14
	,		10		14	20			12	10	-0	ugn	
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Chloride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	0.4	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Sulphate	2.9	1.9	1.2	3.1	0.8	2.7	2.9	2.4	2.7	2.5	<0.5	mg/l	SA_TM27/SA_PM0
Nitrate as N	0.07	<0.05	<0.05	0.11	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	mg/l	SA_TM27/SA_PM0
Total Cyanide*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	UK_TM89/UK_PM0
Hexavalent Chromium*	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	UK_TM38/UK_PM0
Total Dissolved Solids	<35	<35	<35	38	<35	65	36	102	136	84	<35	mg/l	SA_TM20/SA_PM80
pH	6.99	6.98	7.91	8.58	7.36	7.78	7.28	8.65	8.13	7.88	<2.00	pH units	SA_TM19/SA_PM0
			-			-	-						

Client Name:	WSP Group Africa				
Reference:	21465149				
Location:	Seriti New Largo				
Contact:	Shameer Hareeparsad				

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason						
	No deviating sample report results for job 23/107											

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/107

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation. Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.
#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/107

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
SA_TM19	Determination of pH by bench pH meter	SA_PM0	No preparation is required.			AR	No
SA_TM20	Modified BS 1377-3: 1990 Gravimetric determination of Total Dissolved Solids	SA_PM80	A 20:1 ratio of leaching fluid to as received soil, is leached for 18 hours. The client can choose to use any of the following leaching fluids a) deionised water b) pH5 c) pH 5/pH2.9 depending on pH of sample d) pH9.2			AR	No
SA_TM27	Major ions by lon Chromatography	SA_PM0	No preparation is required.				
SA_TM27	Major ions by lon Chromatography	SA_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a orbital shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a orbital shaker.			AD	Yes
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				No
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.				Yes
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM0	No preparation is required.				No
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.				Yes
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM0	No preparation is required.				No
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.				Yes

Appendix B

TYPE PROFILING

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11.



Waste Type Profiling and Disposal Prohibition Appraisal Based on National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN R635 of 2013) together with National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)

Source of Waste: Waste Matrix (Liquid / Solid):	Solid				norstspruit and eMalahleni town	ns, Sample B	- Shale	Арр	raisal Date:	May 2023	
Leachate Preparation (Solids Only):			osal): Reagent n (ppm) - So		Waste Type		Concentra	ation (ppm) - Leacha	te/Liquid	Waste Type
Substance	ТСТ0	TCT1	TCT2	Assessed Concentration	(based on TCTs only; subject to LCTs)	LCT0	LCT1	LCT2	LCT3	Assessed Concentration	(based on LCTs only; subject to TCTs)
Metal Ions Arsenic	5.8	500	2000	6.5	Туре 3	0.01	0.5	1	4		
Boron	150	15000	60000	6.4	Type 4	0.5	25	50	200	0.022	Type 4
Barium	62.5 7.5	6250 260	25000 1040	150	Type 3	0.7	35 0.15	70 0.3	280 1.2	0.257	Type 4
Cadmium Cobalt	50	5000	20000	91.5	Type 3	0.003	25	50	200		
Chromium	46000	800000	-	28.2	Type 4	0.1	5	10	40		
Chromium (Hexavalent) Copper	6.5 16	500 19500	2000 78000	53	Type 3	0.05	2.5 100	5 200	20 800		
Mercury	0.93	160	640	0.1	Type 4	0.006	0.3	0.6	2.4		
Manganese Molybdenum	1000 40	25000 1000	100000 4000	1197 5.2	Type 3 Type 4	0.5	25 3.5	50 7	200 28		
Nickel	91	10600	42400	144	Type 3	0.07	3.5	7	28		
Lead	20	1900	7600	36 2	Type 3	0.01	0.5	1	4		
Antimony Selenium	10 10	75 50	300 200	2	Type 4 Type 4	0.02	0.5	1	4		
Vanadium	150	2680	10720	65	Type 4	0.2	10	20	80		
Zine Inorganic Anions	240	160000	640000	159	Type 4	5	250	500	2000	0.011	Type 4
Fotal Dissolved Solids	-	-	-	Not	t Applicable	1000	12500	25000	100000		
Chloride	-	-	-		t Applicable	300	15000	30000	120000		
Sulphate	-	-	-		t Applicable	250	12500	25000	100000	1.9	Type 4
Nitrate Fluoride	- 100	- 10000	- 40000	No	t Applicable	11	550 75	1100 150	4400 600		
Cyanide	100	10500	40000			0.07	3.5	7	28		
Organics		10	40				0.01	0.02	0.02		
Benzene Benzo(a)pyrene	-	10 1.7	40 6.8			-	0.01 0.035	0.02 0.07	0.08 0.28		
Carbon tetrachloride	-	4	16			-	0.2	0.4	1.6		
Chlorobenzene Chloroform	-	8800 700	35200 2800			-	5 15	10 30	40 120		
2-Chlorophenol	-	2100	8400			-	15	30	120		
Bis(2-ethylhexyl)phthalate	-	40 31900	160 127600			-	0.5	1 10	4 40		
l,4-Dichlorobenzene	-	18400	73600			-	15	30	120		
,2-Dichloroethane	-	3.7 150	14.8 600			-	1.5 0.35	3 0.7	12 2.8		
1,1-Dichloroethene	-	3750	15000			-	2.5	5	2.8		
Dichloromethane	-	16	64				0.25	0.5	2		
2,4-Dichlorophenol 2,4-Dinitrotoluene	-	800 5.2	3200 20.8			-	10 0.065	20 0.13	80 0.52		
Ethylbenzene	-	540	2160			-	3.5	7	28		
Formaldehyde Hexachlorobutadiene	-	2000 2.8	8000 5.4			-	25 0.03	50 0.06	200 0.24		
Methyl Ethyl Ketone (2-Butanone)		8000	32000				100	200	800		
Methyl Tertiary Butyl Ether	-	1435	5740				2.5	5	20		
Nitrobenzene Fotal PAHs	-	45 50	180 200				-	-	-	Not A	pplicable
>C6-C9	-	650	2600				-	-	-	Not A	pplicable
>C10-C36	-	10000	40000			-	-	-	-	Not A	pplicable
Phenol Polychlorinated Biphenyls (PCBs)	-	560 12	2240 48			-	7 0.025	14 0.05	56 0.2		
Styrene	-	120	480				1	2	8		
1,1,1,2-Tetrachloroethane	-	400 5	1600 20			-	5 0.65	10	40 5.3		
Fetrachloroethene	-	200	800				0.25	0.5	2		
Foluene Frichlorobenzenes (Sum)	-	1150 3300	4600 13200			-	35 3.5	70	280		
1,1,1-Trichloroethane	-	1200	4800				15	30	120		
l,1,2-Trichloroethane Frichloroethene	-	48 11600	192 46400			-	0.06	1	4		
2,4,6-Trichlorophenol	-	1770	7080			-	10	20	80		
Vinyl chloride Kylenes (Sum)	-	1.5 890	6 3560			-	0.015	0.03	0.12 200		
Pesticides		0,0	5500				25		200		
Aldrin + Dieldrin	0.05	1.2 50	4.8 200			-	0.015	0.03	0.03		
DDT + DDD + DDE 2,4-Dichlorophenoxyacetic Acid (2,4-D)	0.05	120	480				1.5	3	3		
Chlordane	0.05	4	16			-	0.05	0.1	0.1 0.03		
Heptachlor Supplementary		1.2 ion for Con	4.8 firmation of	Type 4 Waste Ty	pe		0.015	0.03	0.03 No	tes	
Organias	Co	ncentration	(mg/kg), un		Satisfy					st conservative type cal otal (TCT) or Leachable	culated for any e (LCT) concentrations.
Organics		Threshold		Assessed Concentration	Type 4	2. Where a	number of w	aste types ar	e applicable	for any given substance	e (i.e. the consideration
Me	tals (all conce	ntrations <tc< td=""><td>T0 & LCT0):</td><td>As above</td><td>No</td><td></td><td></td><td></td><td></td><td>file), the final waste typ a simultaneously.</td><td>e is determined by</td></tc<>	T0 & LCT0):	As above	No					file), the final waste typ a simultaneously.	e is determined by
		ntrations <tc< td=""><td>T0 & LCT0):</td><td>As above</td><td>Yes</td><td>3. Only whe</td><td>re laborator</td><td>y analysis ho</td><td>is resulted in</td><td>positive identification</td><td>of substances (i.e. above</td></tc<>	T0 & LCT0):	As above	Yes	3. Only whe	re laborator	y analysis ho	is resulted in	positive identification	of substances (i.e. above
Fotal Organic Carbon BTEX (Sum)	(%)	6	5		To Clarify To Clarify						ive TCTs and LCTs (i.e. s of detection have been
Polychlorinated Biphenyls (PCBs)		1			To Clarify	assumed to	be absent).				
Mineral Oil (>C10-C40)		500			To Clarify	the analytic	al results ob	tained direct	ly from the li	quid media to the LCT	dertaken by comparing thresholds given that
Pesticides		0.05			The City 20			ovide a leach			
Aldrin + Dieldrin DDT + DDD + DDE		0.05			To Clarify To Clarify						
					To Clarify						
DDT + DDD + DDE 2,4-Dichlorophenoxyacetic Acid (2,4-D)		0.05			To Clarify						
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane		0.05									
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor	10.000.000	0.05 0.05	itions car bat	(rt)	To Clarify	Catagerra	f I andfill (C	N R636-06-	013		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor <mark>)verall Screened Waste Type (<i>notwithstanti</i>t</mark>	ng potential d	0.05 0.05	itions, see belo	w)				GN R636 of 2	013)		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor	ng potential d	0.05 0.05	itions, see belo	w)			f Landfill (G		013)		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor <mark>)verall Screened Waste Type (<i>notwithstanti</i>t</mark>		0.05 0.05 isposal prohib			To Clarify				013)		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor Overall Screened Waste Type (<i>notwithstandi</i> Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm	S (notwithstand	0.05 0.05 isposal prohib ing other potent PCBs (ppm):	ial restrictions a	ssociated with Waste Typ	To Clarify c) Not assessed or less than labo	Class	C / G		0013)		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor Overall Screened Waste Type (notwithstandi Type 3 Waste Physicochemical Disposal Prohibition 2CBs > 50ppm Explosive, corrosive or oxidising according t	S (notwithstand	0.05 0.05 isposal prohib ing other potent PCBs (ppm):	ial restrictions a		To Clarify c) Not assessed or less than labo Not applicable	Class	C / G		013)		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor Overall Screened Waste Type (<i>notwithstandi</i> Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm	S (notwithstand	0.05 0.05 isposal prohib ing other potent PCBs (ppm):	ial restrictions a	ssociated with Waste Typ	To Clarify c) Not assessed or less than labo	Class	C / G		013)		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor Overall Screened Waste Type (notwithstandi Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm Explosive, corrosive or oxidising according to H < 6 or >12 Flashpoint <61° Celsius Moisture Content > 40%	S (notwithstand) SANS 10234 Fl	0.05 0.05 isposal prohib ing other potent PCBs (ppm): PCBs (ppm): pH: ashpoint (°C): Content (%):	ial restrictions a	ssociated with Waste Type No	c) Not assessed or less than labo Not asplicable Not assessed Not assessed Not assessed Not assessed r 0%	Class	C / G		013)		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor Dverall Screened Waste Type (notwithstandi Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm Sxplosive, corrosive or oxidising according to H < 6 or >12 Flashpoint <61° Celsius	S (notwithstand) SANS 10234 Fl	0.05 0.05 isposal prohib ing other potent PCBs (ppm): i pH: ashpoint (°C):	ial restrictions a:	ssociated with Waste Typ	c) Not assessed or less than labo Not applicable Not assessed Not assessed	Class	C / G		013)		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane Heptachlor Dverall Screened Waste Type (notwithstandi Type 3 Waste Physicochemical Disposal Prohibition 7CBs > 50ppm 2xplosive, corrosive or oxidising according t H <6 or >12 Tashpoint <61° Celsius Moisture Content > 40% Hazardous with Calorific Value >10MJ/kg	S (notwithstand) SANS 10234 Fl	0.05 0.05 isposal prohib isposal prohib PCBs (ppm): pH: ashpoint (°C): Content (°A): CV (MJ/kg):	ial restrictions as N/A	ssociated with Waste Typ No No	To Clarify c) Not assessed or less than labo Not assessed Not assessed Not assessed Not assessed Not assessed Not asplicable	Class pratory limit o	C / G		013)		

Appendix C

CLASSIFICATION

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11.



WSP Reference: 41105637	Prepared For: Seriti Coal (Pty) Ltd
Generator: New Largo Coal (Pty) Ltd	Assessment Date: May 2023
Source Address: N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	
Production Process: Sample B - Shale	

General Appearance	Classification Summary
Soil	Not Hazardous (General)

Potential Hazard Statement Codes of Relevance

Composition & Quantitative Classification

Composition assessed in general accordance with the following hierarchy:

1. South African National Standard, Globally Harmonised System of Classification and Labelling of Chemicals (GHS), SANS 10234:2019, Edition 2

2. European Regulation (EC) No. 1272/2008, 'Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation)

Hazard Statement Codes for individual compounds are sourced from:

1. Supplement to SANS 10234:2008 Edition 1

2. Table 3.1 of Annex VI of the CLP Regulations

3. European Chemicals Agency, Classification & Labelling Inventory Database

4. Product (Material) Safety Data Sheet

Where relevant, recorded concentrations have been converted from dry weight values to account for the recorded moisture content of material.

Quantitative screening assessment of individual Hazard Statement Codes presented on the following pages.

Hazard Statement	Hazard Statement	Generic Cut- Off Value	Off Value	Generic Cut-Off Value and Test Comments	Assessment Concentration	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
Code		(%)	(ppm)	PHYSICAL HAZARD	(ppm) STATEMENTS			
				If >0% then classified under H200 unless further	No substances			
H200	Unstable explosive	0	0	information and/or testing proves otherwise	identified	Not applicable	No	
H201	Explosive; mass explosion hazard	0	0	If >0% then classified under H201 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H202	Explosive; severe projection hazard	0	0	If >0% then classified under H202 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H203	Explosive; fire, blast or projection hazard	0	0	If >0% then classified under H203 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H204	Fire or projection hazard	0	0	If >0% then classified under H204 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H205	May mass explode in fire	0	0	If >0% then classified under H205 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H220	Extremely flammable gas	0	0	If >0% then classified under H220 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H221	Flammable gas	0	0	If >0% then classified under H221 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H222	Extremely flammable aerosol	0	0	If >0% then classified under H222 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H223	Flammable aerosol	0	0	If >0% then classified under H223 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H224	Extremely flammable liquid and vapour	0	0	If >0% then classified under H224 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H225	Highly flammable liquid and vapour	0	0	If >0% then classified under H225 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H226	Flammable liquid and vapour	0	0	If >0% then classified under H226 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H227	Combustible liquid	0	0	If >0% then classified under H227 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H228	Flammable solid	0	0	If >0% then classified under H228 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H229	Pressurised container: may burst if heated	0	0	Relevant only for pressurised containers	Not applicable	Not applicable	No	
H230	May react explosively even in the absence of air	0	0	If >0% then classified under H230 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H231	May react explosively even in the absence of air at elevated pressure and/or temperature	0	0	If >0% then classified under H231 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H240	Heating may cause an explosion	0	0	If >0% then classified under H240 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H241	Heating may cause a fire or explosion	0	0	If >0% then classified under H241 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H242	Heating may cause a fire	0	0	If >0% then classified under H242 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)
H250	Catches fire spontaneously if exposed to air	0	0	If >0% then classified under H250 unless further information and/or testing proves otherwise	79.50	Potential to catch fire spontaneously if exposed to air: detailed assessment required	Not likely at recorded concentration
H251	Self-heating; may catch fire	0	0	If >0% then classified under H251 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
H252	Self-heating in large quantities; may catch fire	0	0	If >0% then classified under H252 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
H260		0	0	If >0% then classified under H260 unless further information and/or testing proves otherwise	39.75	Assessment, see below	Substance- specific assessments: see below
		0.0076	76.1	<u>Element-specific assessment</u> Concentration of aluminium phosphide required to evolve sufficient volume of phosphine in contact with water to potentially render hazardous; based on stoichiometry	No analysis for aluminium	Not applicable	No
	In contact with water releases flammable gases that may ignite spontaneously	0.108	1076	<i>Element-specific assessment</i> Concentration of free magnesium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for magnesium	Not applicable	No
		0.346	3463	<u>Element-specific assessment</u> Concentration of free potassium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for potassium	Not applicable	No
		0.204	2036	<u>Element-specific assessment</u> Concentration of free sodium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for sodium	Not applicable	No
		0	0	If >0% then classified under H261 unless further information and/or testing proves otherwise	75.00	Assessment, see below	Substance- specific assessments: see below
	In contact with water	0.608	6082	<u>Element-specific assessment</u> Concentration of free barium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	150.00	Unlikely to generate hazardous volume of hydrogen	No
H261	releases flammable gas	0.177	1775	<u>Element-specific assessment</u> Concentration of free calcium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for calcium	Not applicable	No

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
		0	0	<u>Compound-specific assessment</u> Ferrosilicon may evolve sufficient hydrogen in contact with water to render hazardous; based on ratio of iron:silicon	Ferrosilicon not identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H270	May cause or intensify fire; oxidiser	0	0	If >0% then classified under H270 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H271	May cause fire or explosion; strong oxidiser	0	0	If >0% then classified under H271 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H272	May intensify fire; oxidiser	0	0	If >0% then classified under H272 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H280	Contains gas under pressure; may explode if heated	0	0	If >0% then classified under H280 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H281	Contains refrigerated gas; may cause cryogenic burns or injury	0	0	If >0% then classified under H281 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H290	May be corrosive to metals	0	0	If contributing substance >0% then conservatively classified under H290 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
				HEALTH HAZARD S	STATEMENTS			
H300	Fatal if swallowed	1	10000	If cumulative/additive concentrations of contributing substances >1% then conservatively classified under H300 (Category 1 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H301	Toxic if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H301 (Category 3 Acute Toxicity: Oral); pending further assessment	6.50	Further assessment not necessary	No	
H302	Harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H302 (Category 4 Acute Toxicity: Oral); pending further assessment	6.40	Further assessment not necessary	No	
H303	May be harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H303 (Category 5 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H304	May be fatal if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% then conservatively classified under H304 (Aspiration Hazard, Category 1); pending further assessment	No substances identified	Not applicable	No	
H305	May be harmful if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% classified under H305 (Aspiration Hazard, Category 2); pending further assessment	No substances identified	Not applicable	No	
H310	Fatal in contact with skin	1	10000	If cumulative/additive >1% classified under H310 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H311	Toxic in contact with skin	1	10000	If individual substance >1% classified under H311 (Category 3 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H312	Harmful in contact with skin	1	10000	If individual substance >1% classified under H312 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H313	May be harmful in contact with skin	1	10000	If individual substance >1% classified under H313 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H314	Causes severe skin burns and eye damage	1	10000	If cumulative/additive >1% classified under H314 (Category 1 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
	bu ns and cyc damage	≤2 pH Uı	nits ≥ 11.5	<u>pH-specific assessment</u> If ≤ 2 or ≥ 11.5 pH then classified as corrosive	pH not determined	Not applicable	Unclarified	
H315	Causes skin irritation	1	10000	If cumulative/additive >1% classified under H315 (Category 3 Skin Corrosion/Irritant), >10% then Category 2; pending further assessment	150.00	Further assessment not necessary	No	
H316	Causes mild skin irritation	10	100000	If cumulative/additive >10% classified under H316 (Category 3 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
H317	May cause an allergic skin reaction	0.1	1000	If individual substance ≥0.1% classified under H317 (Category 1 Skin Sensitisation); pending further assessment	144.00	Further assessment not necessary	No	
H318	Causes serious eye damage	1	10000	If cumulative/additive >1% classified under H318 (Category 2 Skin/Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H319	Causes serious eye irritation	10	100000	If cumulative/additive >10% classified under H319 (Category 2 Eye Sensitisation); pending further assessment	150.00	Further assessment not necessary	No	
H320	Causes eye irritation	10	100000	If cumulative/additive >10% classified under H320 (Category 2 Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H330	Fatal if inhaled	1	10000	If cumulative/additive >1% classified under H330 (Category 1 Acute Toxicity); pending further assessment	0.100	Further assessment not necessary	No	
H331	Toxic if inhaled	1	10000	If individual substance >1% classified under H331 (Category 3 Acute Toxicity); pending further assessment	6.50	Further assessment not necessary	No	
H332	Harmful if inhaled	1	10000	If individual substance >1% classified under H332 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н333	May be harmful if inhaled	1	10000	If individual substance >1% classified under H333 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	0.1	1000	If individual substance >0.1% classified under H334 (Category 1 Respiratory Sensitisation); pending further assessment	91.50	Further assessment not necessary	No	
Н335	May cause respiratory irritation	20	200000	If cumulative/additive >20% classified under H335 under Generic Limits; pending further assessment	150.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H336	May cause drowsiness or dizziness	20	200000	If cumulative/additive >20% classified under H336 under Generic Limits; pending further assessment	No substances identified	Not applicable	No	
H340	May cause genetic defects	0.1	1000	If individual substance >0.1% classified under H340 (Category 1 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H341	Suspected of causing genetic defects	1	10000	If individual substance >1% classified under H341 (Category 2 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H350	May cause cancer	0.1	1000	If individual substance >0.1% classified under H350 (Category 1 Carcinogen); pending further assessment	No substances identified	Not applicable	No	
H351	Suspected of causing cancer	0.1	1000	If individual substance >0.1% classified under H351 (Category 2 Carcinogen); pending further assessment	144.00	Further assessment not necessary	No	
H360	May damage fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H360 (Category 1 Teratogen); pending further assessment	0.10	Further assessment not necessary	No	
H361	Suspected of damaging fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H361 (Category 2 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361d	Suspected of damaging the unborn child	0.1	1000	If individual substance >0.1% classified under H361d; pending further assessment	No substances identified	Not applicable	No	
Н362	May cause harm to breast-fed children	0.1	1000	If individual substance >0.1% classified under H362 (Additional Category Teratogen); pending further assessment	No substances identified	Not applicable	No	
H370	Causes damage to organs	1	10000	If individual substance >1% classified under H370 (Category 1 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H371	May cause damage to organs	1	10000	If individual substance >1% classified under H371 (Category 2 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H372	Causes damage to organs through prolonged or repeated exposure	1	10000	If individual substance >1% classified under H372 (Category 1 Repeat Exposure); pending further assessment	144.00	Further assessment not necessary	No	
H373	May cause damage to organs through	1	10000	If individual substance >1% classified under H373 (Category 2 Repeat Exposure); pending further assessment	2.00	Further assessment not necessary	No	
11575	prolonged or repeated exposure	0.005	50	<u>PCB-specific assessment</u> If PCBs are present >0.005% then classified hazardous under H373	No analysis for PCBs	Not applicable	Unclarified: not anticipated	
				ENVIRONMENTAL HAZA	ARD STATEMEN	ГS		
H400	Very toxic to aquatic life	1	10000	If cumulative/additive >1% classified under H400 (Category 1 Acute Aquatic Toxicity); pending further assessment	165.60	Further assessment not necessary	No	
H401	Toxic to aquatic life	25	250000	If modified cumulative/additive >25% classified under H401 (Category 2 Acute Aquatic Toxicity); pending further assessment	1656.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H402	Harmful to aquatic life	25	250000	If modified cumulative/additive >25% classified under H402 (Category 3 Acute Aquatic Toxicity); pending further assessment	16560.00	Further assessment not necessary	No	
H410	Very toxic to aquatic life with long lasting effects	1	10000	If cumulative/additive >1% classified under H410 (Category 1 Chronic Aquatic Toxicity); pending further assessment	165.60	Further assessment not necessary	No	
H411	Toxic to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H411 (Category 2 Chronic Aquatic Toxicity); pending further assessment	1656.00	Further assessment not necessary	No	
H412	Harmful to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H412 (Category 3 Chronic Aquatic Toxicity); pending further assessment	16706.00	Further assessment not necessary	No	
H413	May cause long lasting harmful effects to aquatic life	25	250000	If modified cumulative/additive >25% classified under H413 (Category 4 Chronic Aquatic Toxicity); pending further assessment	405.10	Further assessment not necessary	No	
H420	Harms public health and the environment by destroying ozone in the upper atmosphere	0.1	1000	If individual substance >0.1% classified under H420 (Category 1). Substances based on Annexes to the Montreal Protocol.	No substances identified	Not applicable	No	
Assumptions	and Comments							

1. Acute Toxicity Estimates (ATE) have not been derived from LD50 data or conversion factors presented in SANS 10234; screening classification has been based on generic cut-off values. Where more detailed assessment is recommended, appropriate LD50 should be sourced based on current available data.

2. Ecotoxicity for Category 1 Acute and Chronic Hazards have assumed 1% threshold and additive compounds rather than utilisation of Weighting Factor/s presented in SANS 10234. Where more detailed assessment is recommended, this should follow the mixture-specific principles defined in SANS 10234.

3. Classification does not include European Union (EU), or other territory-specific, Hazard Statement Codes that may be applicable outside of the Republic of South Africa.

4. Only where data is presented, or where laboratory analysis has resulted in positive identification of substances (i.e. above laboratory limits of detection), have the applicable Hazard Statement Codes been appraised (i.e. substances determined to be at concentrations less than laboratory limits of detection have been assumed to be absent).

5. Unless exact speciation has been established through detailed analysis, classification has been based on reasonable assumptions of substances most-likely present based on expected behaviour within the material. It is recognised that this may not be applicable in all instances and, for clarity, a list of the individual substances appraised where assumptions have been made are listed below.

6. Where laboratory analysis has reported concentrations on a dry weight basis these have been converted to take account of sample moisture content using the formula:

Wet Weight Concentration = Dry Weight Concentration x ((100 - % moisture content)/100).

7. Where assessment has been undertaken on liquids, it has been assumed that 1-litre (volume) is equivalent to 1-kg (mass).

8. For additional details in respect of the individual substances that may render any given material type as hazardous, reference should be made to the appropriate Safety Data Sheet (SDS) which takes account of this classification or, if an SDS has not been prepared, the appropriate report relevant for this classification.

9. To the best of our knowledge, the information contained herein is accurate; however, WSP assumes no liability whatsoever for its accuracy or completeness. The classification of any material, and its appropriate management, remains the responsibility of the generator. All materials may present unknown hazards. Although certain hazards are described herein, it cannot be guaranteed that these are the only hazards that exist, or that these have been recognised in full.

List of Assumed Substances, where necessary

Antimony, Arsenic, Barium, Boron, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Vanadium, Zinc,



WASTE MANAGEMENT SUMMARY REPORT

WASTE IDENTIFICATION	Sample C – Carbonaceous Shale
SOURCE	New Largo Coal (Pty) Ltd
DATE OF ASSESSMENT	March 2024

Relevant Regulations and Standards

- ✓ National Environmental Management: Waste Act (NEM: WA, 2008)
- ✓ National Environmental Management: Waste Amendment Act (NEM: WAA, 2014)
- ✓ National Environmental Management Laws Amendment Act (NEMLAA, 2022)
- ✓ Waste Classification and Management Regulations (GN R634 of 2013)
- ✓ Regulations for Hazardous Chemical Agents (GG 44366, 2021)
- ✓ National Norms and Standards for the Assessment of Waste to Landfill Disposal (GN R635 of 2013)
- ✓ National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)
- ✓ South African National Standard (SANS) 10234:2019, Globally Harmonised System of Classification and Labelling of Chemicals (GHS) (SANS 10234)
- ✓ South African National Standard (SANS) 11014:2010, Safety Data Sheet for Chemical Products Content and Order of Sections (SANS 11014)

Scope

Included	Element	Description
✓	Defined and Listed Waste Appraisal	Desktop appraisal of whether the waste is defined under Schedule 3 of the NEM: WAA and/or listed in Annexure 1 of GN R634. Wastes either defined or listed do not necessarily require classification in terms of SANS 10234.
✓	Appraisal of Disposal Prohibitions	Determination of possible disposal prohibitions in terms of GN R636.
✓	Waste Type Profiling for Landfill Disposal	Profiling in accordance with GN R635 and/or Waste Acceptance Criteria as detailed in GN R636.
✓	Classification	Quantitative classification in broad accordance with SANS 10234.
×	Safety Data Sheet	A Safety Data Sheet (SDS) is required for all hazardous waste (excluding Health Care Risk Waste) in terms of GN R634.

Waste Description

Process Origin	Chemical Inputs	Physical Characteristics
N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	None known	Solid

Defined Waste Appraisal

Listed in Schedule 3 of NEM: WAA	Yes
Descriptor	Category A: Wastes resulting from exploration, mining quarrying, and physical and chemical treatment of minerals (a) wastes from mineral excavation.
1. The above descriptor also takes account of the proceeding classification	



Listed Waste Appraisal

Listed in Annexure 1 of GN R634	No
Descriptor	Not applicable
2. Not categorically listed in GN R634	•

Sampling and Laboratory Analysis

Sampler	Date	Comments		
WSP	February 2023	Representative samples were collected by W analysis.	/SP and subr	nitted for
Analytical Suit	te		Μ	atrix
			Total	Leachate
Metals and me	etalloids, as listed in G	N R635		
Antimony, arse	nic, barium, boron, cadn	nium, chromium (total and hexavalent), cobalt,	\checkmark	\checkmark
copper, lead, m	nanganese, mercury, mo	lybdenum, nickel, selenium, vanadium, and	v	v
zinc				
Inorganics, as	listed in GN R635			
Chloride, nitrate	e, sulphate, and Total Di	ssolved Solids	N/A	\checkmark
Cyanide and flu	uoride		\checkmark	\checkmark
Organics, as l	isted in GN R635			
Benzene, tolue	ne, ethylbenzene, and x	ylenes (BTEX)	×	×
Petroleum hydr	ocarbons		×	N/A
Polychlorinated	l Biphenyls (PCB)		×	×
Polycyclic Aromatic Hydrocarbons (PAH)		×	N/A	
Volatile and Semi-Volatile Organic Compounds (VOC and SVOC)		×	×	
	listed in GN R635			
Aldrin + Dieldrin		×	×	
DDT + DDD + I	DDE		×	×
2,4-D			×	×
Chlordane			×	×
Heptachlor	-		×	×
	neters, to support class	sification and disposal restriction appraisal.		
Calorific Value			×	×
Flashpoint			×	×
Mineral Oil			×	× ×
Moisture Conte	ent		×	× N/A
pH			×	IN/A ×
Total Organic C	. ,		~	~
••	y Parameters reasonal	•	**	
Aluminium, cale	cium, iron, magnesium, p	potassium, sodium, and phosphorous	×	×

Notes to Laboratory Analysis

1. N/A – Not applicable

2. As per GN R635, leachate was prepared using reagent water applicable to a mono-disposal scenario.

3. Whilst not all the substances above are likely to be present, the suite represents those determinants listed within the variously applicable Norms and Standards alongside other parameters that are expected.

4. It should be noted that pesticides have been omitted from the analytical suite as it is unreasonable to suspect their presence within the stream.

5. Laboratory certificate of analysis provided within **Appendix A** including details of any analysis unable to be completed based on the sample matrix.



Appraisal of Disposal Prohibitions

Restrictive Condition	Description
None identified	N/A

Waste Type Profiling for Landfill Disposal¹

Waste Type	Landfill Class
Туре 3	Class C

1. Refer to Appendix B for indicative profiling assessment.

 Type Profiling is based on consideration of total and leachate concentrations of substances published in Paragraph 6 of GN R635 and the appropriate landfill class is determined with reference to the Waste Acceptance Criteria in Paragraph 4 of GN R636.

3. While reference is made in GN R634 to the application of SANS 10234 classification to Waste Type Profiling, the then Department of Environmental Affairs (DEA) confirmed during stakeholder engagement that Hazard Statement Codes for transportation and handling are not intended to be utilised for Waste Type Profiling for landfill disposal.

SANS 10234 Classification

Hazardous	Non-Hazardous ✓

- 1. Refer to **Appendix C** for the quantitative screening classification.
- Assumptions in terms of the chemical form (speciation) in which elemental components of the waste stream are likely to occur have generally been conservative considering plausible thermodynamic and mineralogical assemblages.
- 3. Where applicable to the sample medium, results of laboratory analysis have been corrected according to sample-specific moisture content.
- 4. Where SANS 10234 guidance is either not available, unclear, or relatively incomplete, cognisance has been taken of European Regulation (EC) No. 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) that adopts, within the European community, the GHS as published by the United Nations Social and Economic Council.
- Hazard Statement Codes for the substances have been sourced from either the supplement to SANS 10234:2008 Edition 1, Table 3.1 of Annex VI of the CLP Regulations, or the European Chemicals Agency, Classification & Labelling Inventory Database.
- 6. Cognisance must be taken of the need to reclassify the waste every five years, or if the generation process changes or, otherwise, if more data becomes available.

Safety Data Sheet

Required	No		

Appendices

Appendix	Title
Α	Laboratory Analytical Certificates
В	Type Profiling Assessment (GN R635/636)
С	Screening Material Classification (SANS 10234)

¹ Subject to any prohibitions



Waiver

The Waste Management Summary Report (Report) has been prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf and at the request of Seriti Coal (Pty) Ltd (Client), to provide the Client with an understanding of the Relevant Documents.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report except where otherwise indicated.

Authorisation

Shameer Hareeparsad Principal Associate Shameer.Hareeparsad@wsp.com

Appendix A

LABORATORY ANALYTICAL CERTIFICATES

CONFIDENTIAL



Element Materials Technology Unit D2 & D5 9 Quantum Road Firgrove Business Park Somerset West 7130 South Africa

W: www.element.com

WSP Group Africa Building C, Knightsbridge 33 Sloane Street Bryanston Johannesburg Gauteng South Africa 2191

Attention :	Shameer Hareeparsad
Date :	3rd March, 2023
Your reference :	21465149
Our reference :	Test Report 23/107 Batch 1
Location :	Seriti New Largo
Date samples received :	21st February, 2023
Status :	Final report
Issue :	1

Ten samples were received for analysis on 21st February, 2023 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Analysis was undertaken at either Element Materials Technology UK, which is ISO 17025 accredited under UKAS (4225) or Element Materials Technology (SA) which is ISO 17025 accredited under SANAS (T0729) or a subcontract laboratory where specified.

NOTE: Under International Laboratory Accreditation Cooperation (ILAC), ISO 17025 (UKAS) accreditation is recognised as equivalent to SANAS (South Africa) accreditation.

Authorised By:

Jeanri Stevens Laboratory Supervisor

Inorganics Laboratory:

Aubrey Lindi Technical Signatory (Inorganics)

Please include all sections of this report if it is reproduced

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023			
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt					21/02/2023			21/02/2023			LOD/LOR	Units	Method No.
Antimony*	1	2	<1	<1	<1	1	3	3	2	2	<1	mg/kg	UK_TM30/UK_PM15
Arsenic*	6.9	6.5	1.4	6.1	4.5	5.3	4.1	3.8	8.8	11.5	<0.5	mg/kg	UK_TM30/UK_PM15
Barium*	116	150	99	99	170	571	136	121	472	388	<1	mg/kg	UK_TM30/UK_PM15
Cadmium*	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	UK_TM30/UK_PM15
Chromium*	30.1	28.2	6.9	25.1	28.3	42.4	88.1	48.8	42.1	47.0	<0.5	mg/kg	UK_TM30/UK_PM15
Cobalt*	11.5	91.5	1.1	13.0	16.6	18.0	17.7	17.3	24.4	15.9	<0.5	mg/kg	UK_TM30/UK_PM15
Copper*	45	53	14	49	46	15	28	18	51	56	<1	mg/kg	UK_TM30/UK_PM15
Lead* Manganese*	22 730	36 1197	21 74	26 62	28 450	7 1662	18 496	17 576	31 818	29 387	<5 <1	mg/kg mg/kg	UK_TM30/UK_PM15 UK_TM30/UK_PM15
Mercury*	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	mg/kg	UK TM30/UK PM15
Molybdenum*	1.3	5.2	0.1	0.2	0.7	1.3	0.8	0.8	1.8	2.2	<0.1	mg/kg	UK_TM30/UK_PM15
Nickel*	22.7	144.0	5.1	15.2	27.3	19.9	29.4	29.8	43.0	41.0	<0.7	mg/kg	UK_TM30/UK_PM15
Selenium*	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	UK_TM30/UK_PM15
Vanadium*	49	65	11	26	91	20	68	56	72	64	<1	mg/kg	UK_TM30/UK_PM15
Boron (Aqua Regia Soluble)*	2.87	6.40	12.36	6.42	10.91	0.54	<0.25	<0.25	1.08	1.86	<0.25	mg/kg	UK_TM30/UK_PM15
Zinc*	131	159	<5	142	105	56	110	120	197	130	<5	mg/kg	UK_TM30/UK_PM15
Fluoride	0.7	1.5	0.7	0.5	1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	malka	SA_TM27/SA_PM20
Hexavalent Chromium*	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	<0.3	<0.3	<0.3	< 0.3	mg/kg mg/kg	UK_TM38/UK_PM20
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0		
Total Cyanide*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	UK_TM89/UK_PM45

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : ASLP (20:1) - Reagent Water

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and ad	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date			20/02/2023	20/02/2023		20/02/2023							
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt													
Dissolved Antimony*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Arsenic* Dissolved Barium*	<2.5 289	<2.5 257	<2.5 214	<2.5 229	<2.5 161	<2.5 272	<2.5 231	<2.5 274	<2.5 246	<2.5 272	<2.5 <3	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Boron*	289	237	15	229	24	50	69	63	88	72	<12	ug/l ug/l	UK_TM30/UK_PM14
Dissolved Cadmium*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	UK_TM30/UK_PM14
Dissolved Chromium*	<1.5	<1.5	<1.5	<1.5	<1.5	2.1	<1.5	<1.5	1.9	2.7	<1.5	ug/l	UK_TM30/UK_PM14
Dissolved Cobalt*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Copper*	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	UK_TM30/UK_PM14
Dissolved Lead*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	UK_TM30/UK_PM14
Dissolved Manganese*	<2	<2	<2	<2	<2	34	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Mercury*	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	ug/l	UK_TM30/UK_PM14
Dissolved Molybdenum*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Nickel*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Selenium* Dissolved Vanadium*	<3 1.7	<3 <1.5	<3 <1.5	<3 2.4	<3 <1.5	<3 <1.5	<3 <1.5	<3 3.2	<3 2.0	<3 3.9	<3 <1.5	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Zinc*	7	11	10	11	14	20	14	17	12	3.9 18	<1.5	ug/l ug/l	UK_TM30/UK_PM14
	,		10		14	20			12	10	-0	ugn	
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Chloride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	0.4	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Sulphate	2.9	1.9	1.2	3.1	0.8	2.7	2.9	2.4	2.7	2.5	<0.5	mg/l	SA_TM27/SA_PM0
Nitrate as N	0.07	<0.05	<0.05	0.11	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	mg/l	SA_TM27/SA_PM0
Total Cyanide*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	UK_TM89/UK_PM0
Hexavalent Chromium*	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	UK_TM38/UK_PM0
Total Dissolved Solids	<35	<35	<35	38	<35	65	36	102	136	84	<35	mg/l	SA_TM20/SA_PM80
pH	6.99	6.98	7.91	8.58	7.36	7.78	7.28	8.65	8.13	7.88	<2.00	pH units	SA_TM19/SA_PM0
			-			-	-						

Client Name:	WSP Group Africa
Reference:	21465149
Location:	Seriti New Largo
Contact:	Shameer Hareeparsad

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason							
	No deviating sample report results for job 23/107												

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/107

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation. Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/107

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
SA_TM19	Determination of pH by bench pH meter	SA_PM0	No preparation is required.			AR	No
SA_TM20	Modified BS 1377-3: 1990 Gravimetric determination of Total Dissolved Solids	SA_PM80	A 20:1 ratio of leaching fluid to as received soil, is leached for 18 hours. The client can choose to use any of the following leaching fluids a) deionised water b) pH5 c) pH 5/pH2.9 depending on pH of sample d) pH9.2			AR	No
SA_TM27	Major ions by lon Chromatography	SA_PM0	No preparation is required.				
SA_TM27	Major ions by lon Chromatography	SA_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a orbital shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a orbital shaker.			AD	Yes
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				No
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.				Yes
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM0	No preparation is required.				No
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.				Yes
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM0	No preparation is required.				No
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.				Yes

Appendix B

TYPE PROFILING

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11.



Waste Type Profiling and Disposal Prohibition Appraisal Based on National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN R635 of 2013) together with National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)

nf Waster New Largo Coal (Ptv) Ltd. N4 and N12 highways between Bronkhorstspruit and eMalahleni towns. Sample C - Carbonaceous shale

		oal (Pty) Ltd, N	14 and N12 hig	hways between Bronkh	norstspruit and eMalahleni tov	wns, Sample C	- Carbonaceo				
Waste Matrix (Liquid / Solid)	Solid Appraisal Date: May 2023 Only): Non-Putrescible (Mono-Disposal): Reagent Water								May 2023		
		oncentratio		lid/Total	Waste Type		Concentra	tion (ppm) - Leacha	Ū.	Waste Type
Substance	тст0	TCT1	TCT2	Assessed Concentration	(based on TCTs only; subject t LCTs)	LCT0	LCT1	LCT2	LCT3	Assessed Concentration	(based on LCTs only; subject to TCTs)
Metal Ions							_				
Arsenic Boron	5.8 150	500 15000	2000 60000	1.4 12.36	Type 4 Type 4	0.01	0.5	1 50	4 200	0.015	Type 4
Barium	62.5	6250	25000	99	Type 3	0.7	35	70	280	0.214	Type 4
Cadmium	7.5	260	1040		Trace 4	0.003	0.15	0.3	1.2		
Cobalt Chromium	50 46000	5000 800000	20000	1.1	Type 4 Type 4	0.5	25 5	50 10	200 40		
Chromium (Hexavalent)	6.5	500	2000			0.05	2.5	5	20		
Copper Mercury	16 0.93	19500 160	78000 640	14	Type 4	2 0.006	100 0.3	200 0.6	800 2.4		
Manganese	1000	25000	100000	74	Type 4	0.5	25	50	200		
Molybdenum	40	1000	4000	0.1	Type 4	0.07	3.5	7	28		
Nickel Lead	91 20	10600 1900	42400 7600	5.1	Type 4 Type 3	0.07	3.5 0.5	1	28		
Antimony	10	75	300		21	0.02	1	2	8		
Selenium Vanadium	10 150	50 2680	200 10720	11	Type 4	0.01 0.2	0.5	1 20	4 80		
Zinc	240	160000	640000		Type :	5	250	500	2000	0.01	Type 4
Inorganic Anions				N		1000					
Total Dissolved Solids Chloride		-	-		t Applicable t Applicable	1000 300	12500 15000	25000 30000	100000 120000		
Sulphate					t Applicable	250	12500	25000	100000	0.0012	Type 4
Nitrate			-		t Applicable	11	550	1100	4400		
Fluoride	100	10000	40000	0.7	Type 4	1.5	75	150	600		
Cyanide Organics	14	10500	42000			0.07	3.5	7	28		
Benzene	-	10	40			-	0.01	0.02	0.08		
Benzo(a)pyrene	-	1.7	6.8			-	0.035	0.07	0.28		
Carbon tetrachloride Chlorobenzene	-	4 8800	16 35200			-	0.2	0.4	1.6 40		
Chloroform	-	700	2800			-	15	30	120		
2-Chlorophenol Bis(2-ethylhexyl)phthalate		2100 40	8400 160				15 0.5	30	120		
1,2-Dichlorobenzene	-	31900	127600			-	5	10	40		
1,4-Dichlorobenzene	-	18400 3.7	73600 14.8			-	15 1.5	30 3	120 12		
1,2-Dichloroethane 1,1-Dichloroethene		150	600			-	0.35	0.7	2.8		
1,2-Dichloroethene		3750	15000			-	2.5	5	20		
Dichloromethane 2,4-Dichlorophenol		16 800	64 3200			-	0.25	0.5	2 80		
2,4-Dinitrotoluene		5.2	20.8			-	0.065	0.13	0.52		
Ethylbenzene	•	540 2000	2160 8000			-	3.5 25	7 50	28 200		
Formaldehyde Hexachlorobutadiene		2000	5.4			-	0.03	0.06	0.24		
Methyl Ethyl Ketone (2-Butanone)		8000	32000			-	100	200	800		
Methyl Tertiary Butyl Ether Nitrobenzene		1435 45	5740 180			-	2.5	5	20		
Total PAHs		50	200			-	-	-	-	Not A	pplicable
>C6-C9		650	2600			-	-	-	-		pplicable
>C10-C36	-	10000	40000			-	-	-	-	Not A	pplicable
Phenol Polychlorinated Biphenyls (PCBs)		560 12	2240 48			-	0.025	14 0.05	56 0.2		
Styrene	•	120	480			-	1	2	8		
1,1,1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane		400 5	1600 20			-	5 0.65	10	40 5.3		
Tetrachloroethene		200	800			-	0.25	0.5	2		
Toluene Trichlorobenzenes (Sum)		1150 3300	4600 13200			-	35 3.5	70	280 28		
1,1,1-Trichloroethane		1200	4800			-	15	30	120		
1,1,2-Trichloroethane	•	48 11600	192 46400			-	0.06 0.25	1	4		
Trichloroethene 2,4,6-Trichlorophenol		1770	7080			-	10	20	80		
Vinyl chloride	•	1.5	6			-	0.015	0.03	0.12		
Xylenes (Sum) Pesticides		890	3560			-	25	50	200		
Aldrin + Dieldrin	0.05	1.2	4.8			-	0.015	0.03	0.03		
DDT + DDD + DDE 2,4-Dichlorophenoxyacetic Acid (2,4-D)	0.05	50 120	200 480			-	1	2	2		
Chlordane	0.05	4	16			-	0.05	0.1	0.1		
Heptachlor	0.05 v Considerat	1.2	4.8	Type 4 Waste Ty	ne	-	0.015	0.03	0.03	tos	
Supprementar		ncentration			Satisfy				from the mo	st conservative type cal	
Organics		Threshold		Assessed	Satisfy Type 4					otal (TCT) or Leachable for any given substance	
м	etals (all conce		T0 & LCT0)+	Concentration As above	No	of TCTs in i	isolation can	not result in	a Type 4 pro	ofile), the final waste typ	
	tions (all conce			As above As above	No Yes					ta simultaneously. positive identification	of substances (i.e. above
Total Organic Carbon	(%)	:	3		To Clarify	laboratory	limits of dete	ction) have t	hese been co	mpared to their respect	ive TCTs and LCTs (i.e.
BTEX (Sum)		6			To Clarify	substances assumed to		o be at conce	ntrations les	s than laboratory limits	of detection have been
Polychlorinated Biphenyls (PCBs) Mineral Oil (>C10-C40)		1 500			To Clarify To Clarify	4. Notwiths	tanding dispe			ng of liquid wastes is un	
Mineral Oil (>C10-C40) Pesticides		500			To Clarify			tained direct wide a leach		iquid media to the LCT or analysis.	thresholds given that
Aldrin + Dieldrin		0.05			To Clarify	, and waste					
DDT + DDD + DDE		0.05			To Clarify						
2,4-Dichlorophenoxyacetic Acid (2,4-D)		0.05			To Clarify						
Chlordane Heptachlor		0.05			To Clarify To Clarify						
Overall Screened Waste Type (notwithstand	ling potential d		tions, see belo	w)	To Charley	Category o	f Landfill (G	N R636 of 2	<i>013</i>)		
Type 3 Waste							C / G				
Physicochemical Disposal Prohibitio	ns (notwithstand	ling other potenti	al restrictions a	ssociated with Waste Typ							
PCBs > 50ppm		PCBs (ppm):			Not assessed or less than lab	ooratory limit o	f detection				
Explosive, corrosive or oxidising according pH <6 or >12	to SANS 10234	4 pH:		No	Not applicable Not assessed						
Flashpoint <61° Celsius	Fl	ashpoint (°C):			Not assessed						
Moisture Content > 40%		Content (%):			Not assessed or 0%						
Hazardous with Calorific Value >10MJ/kg Hazardous with Total Organic Carbon >6%	6	CV (MJ/kg): TOC (%):		No No	Not applicable Not applicable						
Brine (high salt content) >5% TDS		TDS (%):	N/A	N/A	Not applicable to a solid wa	ste					
Leachable TDS >100 000mg/l		TDS (mg/l):	0 Fn	No d of Weste Type Prof	Not applicable iling and Disposal Prohibiti	on Annu-!*					
			r.n	a a a a a a b	ung ang pisposai prombili	and a ouraisal					

End of Waste Type Profiling and Disposal Prohibition Appraisal

Appendix C

CLASSIFICATION

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11.



WSP Reference: 41105637	Prepared For: Seriti Coal (Pty) Ltd
Generator: New Largo Coal (Pty) Ltd	Assessment Date: May 2023
Source Address: N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	
Production Process: Sample C - Carbonaceous shale	

General Appearance	Classification Summary
Soil	Not Hazardous (General)

Potential Hazard Statement Codes of Relevance

Composition & Quantitative Classification

Composition assessed in general accordance with the following hierarchy:

1. South African National Standard, Globally Harmonised System of Classification and Labelling of Chemicals (GHS), SANS 10234:2019, Edition 2

2. European Regulation (EC) No. 1272/2008, 'Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation)

Hazard Statement Codes for individual compounds are sourced from:

1. Supplement to SANS 10234:2008 Edition 1

2. Table 3.1 of Annex VI of the CLP Regulations

3. European Chemicals Agency, Classification & Labelling Inventory Database

4. Product (Material) Safety Data Sheet

Where relevant, recorded concentrations have been converted from dry weight values to account for the recorded moisture content of material.

Quantitative screening assessment of individual Hazard Statement Codes presented on the following pages.

Hazard		Generic Cut-	Generic Cut-		Assessment		Hazardous	
Statement Code	Hazard Statement	Off Value (%)		Generic Cut-Off Value and Test Comments	Concentration (nnm)	Outcome(s) of Further Testing	(Yes / No)	Additional Comments
Coue		(70)	(ppm)	PHYSICAL HAZARD	(ppm) STATEMENTS	<u> </u>		
H200	Unstable explosive	0	0	If >0% then classified under H200 unless further	No substances	Not applicable	No	
11200	-	0	0	information and/or testing proves otherwise	identified	Not applicable	NO	
H201	Explosive; mass explosion hazard	0	0	If >0% then classified under H201 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H202	Explosive; severe projection hazard	0	0	If >0% then classified under H202 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H203	Explosive; fire, blast or projection hazard	0	0	If >0% then classified under H203 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H204	Fire or projection hazard	0	0	If >0% then classified under H204 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H205	May mass explode in fire	0	0	If >0% then classified under H205 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H220	Extremely flammable gas	0	0	If >0% then classified under H220 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H221	Flammable gas	0	0	If >0% then classified under H221 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H222	Extremely flammable aerosol	0	0	If >0% then classified under H222 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H223	Flammable aerosol	0	0	If >0% then classified under H223 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H224	Extremely flammable liquid and vapour	0	0	If >0% then classified under H224 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H225	Highly flammable liquid and vapour	0	0	If >0% then classified under H225 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H226	Flammable liquid and vapour	0	0	If >0% then classified under H226 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H227	Combustible liquid	0	0	If >0% then classified under H227 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H228	Flammable solid	0	0	If >0% then classified under H228 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H229	Pressurised container: may burst if heated	0	0	Relevant only for pressurised containers	Not applicable	Not applicable	No	
H230	May react explosively even in the absence of air	0	0	If >0% then classified under H230 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H231	May react explosively even in the absence of air at elevated pressure and/or temperature	0	0	If >0% then classified under H231 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H240	Heating may cause an explosion	0	0	If >0% then classified under H240 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H241	Heating may cause a fire or explosion	0	0	If >0% then classified under H241 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H242	Heating may cause a fire	0	0	If >0% then classified under H242 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)
H250	Catches fire spontaneously if exposed to air	0	0	If >0% then classified under H250 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
H251	Self-heating; may catch fire	0	0	If >0% then classified under H251 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
H252	Self-heating in large quantities; may catch fire	0	0	If >0% then classified under H252 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
		0	0	If >0% then classified under H260 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
	In contact with water releases flammable gases that may ignite spontaneously	0.0076	76.1	<u>Element-specific assessment</u> Concentration of aluminium phosphide required to evolve sufficient volume of phosphine in contact with water to potentially render hazardous; based on stoichiometry	No analysis for aluminium	Not applicable	No
H260		0.108	1076	<u>Element-specific assessment</u> Concentration of free magnesium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for magnesium	Not applicable	No
		0.346	3463	<i>Element-specific assessment</i> Concentration of free potassium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for potassium	Not applicable	No
		0.204	2036	<u>Element-specific assessment</u> Concentration of free sodium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for sodium	Not applicable	No
	In contact with water releases flammable gas	0	0	If >0% then classified under H261 unless further information and/or testing proves otherwise	49.50	Assessment, see below	Substance- specific assessments: see below
H261		0.608	6082	<u>Element-specific assessment</u> Concentration of free barium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	99.00	Unlikely to generate hazardous volume of hydrogen	No
		0.177	1775	<u>Element-specific assessment</u> Concentration of free calcium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for calcium	Not applicable	No
		0	0	<u>Compound-specific assessment</u> Ferrosilicon may evolve sufficient hydrogen in contact with water to render hazardous; based on ratio of iron:silicon	Ferrosilicon not identified	Not applicable	No

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H270	May cause or intensify fire; oxidiser	0	0	If >0% then classified under H270 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H271	May cause fire or explosion; strong oxidiser	0	0	If >0% then classified under H271 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H272	May intensify fire; oxidiser	0	0	If >0% then classified under H272 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H280	Contains gas under pressure; may explode if heated	0	0	If >0% then classified under H280 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H281	Contains refrigerated gas; may cause cryogenic burns or injury	0	0	If >0% then classified under H281 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H290	May be corrosive to metals	0	0	If contributing substance >0% then conservatively classified under H290 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
				HEALTH HAZARD S	STATEMENTS			
H300	Fatal if swallowed	1	10000	If cumulative/additive concentrations of contributing substances >1% then conservatively classified under H300 (Category 1 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H301	Toxic if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H301 (Category 3 Acute Toxicity: Oral); pending further assessment	1.40	Further assessment not necessary	No	
H302	Harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H302 (Category 4 Acute Toxicity: Oral); pending further assessment	12.36	Further assessment not necessary	No	
H303	May be harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H303 (Category 5 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H304	May be fatal if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% then conservatively classified under H304 (Aspiration Hazard, Category 1); pending further assessment	No substances identified	Not applicable	No	
H305	May be harmful if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% classified under H305 (Aspiration Hazard, Category 2); pending further assessment	No substances identified	Not applicable	No	
H310	Fatal in contact with skin	1	10000	If cumulative/additive >1% classified under H310 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H311	Toxic in contact with skin	1	10000	If individual substance >1% classified under H311 (Category 3 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H312	Harmful in contact with skin	1	10000	If individual substance >1% classified under H312 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н313	May be harmful in contact with skin	1	10000	If individual substance >1% classified under H313 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H314	Causes severe skin	1	10000	If cumulative/additive >1% classified under H314 (Category 1 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
	burns and eye damage	≤2 pH Uı	nits ≥11.5	<u>pH-specific assessment</u> If ≤ 2 or ≥ 11.5 pH then classified as corrosive	pH not determined	Not applicable	Unclarified	
H315	Causes skin irritation	1	10000	If cumulative/additive >1% classified under H315 (Category 3 Skin Corrosion/Irritant), >10% then Category 2; pending further assessment	99.00	Further assessment not necessary	No	
H316	Causes mild skin irritation	10	100000	If cumulative/additive >10% classified under H316 (Category 3 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
H317	May cause an allergic skin reaction	0.1	1000	If individual substance ≥0.1% classified under H317 (Category 1 Skin Sensitisation); pending further assessment	5.10	Further assessment not necessary	No	
H318	Causes serious eye damage	1	10000	If cumulative/additive >1% classified under H318 (Category 2 Skin/Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H319	Causes serious eye irritation	10	100000	If cumulative/additive >10% classified under H319 (Category 2 Eye Sensitisation); pending further assessment	99.00	Further assessment not necessary	No	
H320	Causes eye irritation	10	100000	If cumulative/additive >10% classified under H320 (Category 2 Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H330	Fatal if inhaled	1	10000	If cumulative/additive >1% classified under H330 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H331	Toxic if inhaled	1	10000	If individual substance >1% classified under H331 (Category 3 Acute Toxicity); pending further assessment	1.40	Further assessment not necessary	No	
H332	Harmful if inhaled	1	10000	If individual substance >1% classified under H332 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н333	May be harmful if inhaled	1	10000	If individual substance >1% classified under H333 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	0.1	1000	If individual substance >0.1% classified under H334 (Category 1 Respiratory Sensitisation); pending further assessment	1.10	Further assessment not necessary	No	
Н335	May cause respiratory irritation	20	200000	If cumulative/additive >20% classified under H335 under Generic Limits; pending further assessment	99.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H336	May cause drowsiness or dizziness	20	200000	If cumulative/additive >20% classified under H336 under Generic Limits; pending further assessment	No substances identified	Not applicable	No	
H340	May cause genetic defects	0.1	1000	If individual substance >0.1% classified under H340 (Category 1 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H341	Suspected of causing genetic defects	1	10000	If individual substance >1% classified under H341 (Category 2 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H350	May cause cancer	0.1	1000	If individual substance >0.1% classified under H350 (Category 1 Carcinogen); pending further assessment	No substances identified	Not applicable	No	
H351	Suspected of causing cancer	0.1	1000	If individual substance >0.1% classified under H351 (Category 2 Carcinogen); pending further assessment	5.10	Further assessment not necessary	No	
H360	May damage fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H360 (Category 1 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361	Suspected of damaging fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H361 (Category 2 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361d	Suspected of damaging the unborn child	0.1	1000	If individual substance >0.1% classified under H361d; pending further assessment	No substances identified	Not applicable	No	
H362	May cause harm to breast-fed children	0.1	1000	If individual substance >0.1% classified under H362 (Additional Category Teratogen); pending further assessment	No substances identified	Not applicable	No	
H370	Causes damage to organs	1	10000	If individual substance >1% classified under H370 (Category 1 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H371	May cause damage to organs	1	10000	If individual substance >1% classified under H371 (Category 2 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H372	Causes damage to organs through prolonged or repeated exposure	1	10000	If individual substance >1% classified under H372 (Category 1 Repeat Exposure); pending further assessment	5.10	Further assessment not necessary	No	
11272	May cause damage to organs through prolonged or repeated	1	10000	If individual substance >1% classified under H373 (Category 2 Repeat Exposure); pending further assessment	No substances identified	Not applicable	No	
H373		0.005	50	<u>PCB-specific assessment</u> If PCBs are present >0.005% then classified hazardous under H373	No analysis for PCBs	Not applicable	Unclarified: not anticipated	
				ENVIRONMENTAL HAZA	ARD STATEMEN	TS		
H400	Very toxic to aquatic life	1	10000	If cumulative/additive >1% classified under H400 (Category 1 Acute Aquatic Toxicity); pending further assessment	1.40	Further assessment not necessary	No	
H401	Toxic to aquatic life	25	250000	If modified cumulative/additive >25% classified under H401 (Category 2 Acute Aquatic Toxicity); pending further assessment	14.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments	
H402	Harmful to aquatic life	25	250000	If modified cumulative/additive >25% classified under H402 (Category 3 Acute Aquatic Toxicity); pending further assessment	140.00	Further assessment not necessary	No		
H410	Very toxic to aquatic life with long lasting effects	1	10000	If cumulative/additive >1% classified under H410 (Category 1 Chronic Aquatic Toxicity); pending further assessment	1.40	Further assessment not necessary	No		
H411	Toxic to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H411 (Category 2 Chronic Aquatic Toxicity); pending further assessment	14.00	Further assessment not necessary	No		
H412	Harmful to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H412 (Category 3 Chronic Aquatic Toxicity); pending further assessment	145.10	Further assessment not necessary	No		
H413	May cause long lasting harmful effects to aquatic life	25	250000	If modified cumulative/additive >25% classified under H413 (Category 4 Chronic Aquatic Toxicity); pending further assessment	7.60	Further assessment not necessary	No		
H420	Harms public health and the environment by destroying ozone in the upper atmosphere	0.1	1000	If individual substance >0.1% classified under H420 (Category 1). Substances based on Annexes to the Montreal Protocol.	No substances identified	Not applicable	No		
Assumptions and Comments									

1. Acute Toxicity Estimates (ATE) have not been derived from LD50 data or conversion factors presented in SANS 10234; screening classification has been based on generic cut-off values. Where more detailed assessment is recommended, appropriate LD50 should be sourced based on current available data.

2. Ecotoxicity for Category 1 Acute and Chronic Hazards have assumed 1% threshold and additive compounds rather than utilisation of Weighting Factor/s presented in SANS 10234. Where more detailed assessment is recommended, this should follow the mixture-specific principles defined in SANS 10234.

3. Classification does not include European Union (EU), or other territory-specific, Hazard Statement Codes that may be applicable outside of the Republic of South Africa.

4. Only where data is presented, or where laboratory analysis has resulted in positive identification of substances (i.e. above laboratory limits of detection), have the applicable Hazard Statement Codes been appraised (i.e. substances determined to be at concentrations less than laboratory limits of detection have been assumed to be absent).

5. Unless exact speciation has been established through detailed analysis, classification has been based on reasonable assumptions of substances most-likely present based on expected behaviour within the material. It is recognised that this may not be applicable in all instances and, for clarity, a list of the individual substances appraised where assumptions have been made are listed below.

6. Where laboratory analysis has reported concentrations on a dry weight basis these have been converted to take account of sample moisture content using the formula:

Wet Weight Concentration = Dry Weight Concentration x ((100 - % moisture content)/100).

7. Where assessment has been undertaken on liquids, it has been assumed that 1-litre (volume) is equivalent to 1-kg (mass).

8. For additional details in respect of the individual substances that may render any given material type as hazardous, reference should be made to the appropriate Safety Data Sheet (SDS) which takes account of this classification or, if an SDS has not been prepared, the appropriate report relevant for this classification.

9. To the best of our knowledge, the information contained herein is accurate; however, WSP assumes no liability whatsoever for its accuracy or completeness. The classification of any material, and its appropriate management, remains the responsibility of the generator. All materials may present unknown hazards. Although certain hazards are described herein, it cannot be guaranteed that these are the only hazards that exist, or that these have been recognised in full.

List of Assumed Substances, where necessary

Arsenic, Barium, Boron, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Vanadium,


WASTE MANAGEMENT SUMMARY REPORT

WASTE IDENTIFICATION	Sample D – Sandstone
SOURCE	New Largo Coal (Pty) Ltd
DATE OF ASSESSMENT	March 2024

Relevant Regulations and Standards

- ✓ National Environmental Management: Waste Act (NEM: WA, 2008)
- ✓ National Environmental Management: Waste Amendment Act (NEM: WAA, 2014)
- ✓ National Environmental Management Laws Amendment Act (NEMLAA, 2022)
- ✓ Waste Classification and Management Regulations (GN R634 of 2013)
- ✓ Regulations for Hazardous Chemical Agents (GG 44366, 2021)
- ✓ National Norms and Standards for the Assessment of Waste to Landfill Disposal (GN R635 of 2013)
- ✓ National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)
- ✓ South African National Standard (SANS) 10234:2019, Globally Harmonised System of Classification and Labelling of Chemicals (GHS) (SANS 10234)
- ✓ South African National Standard (SANS) 11014:2010, Safety Data Sheet for Chemical Products Content and Order of Sections (SANS 11014)

Scope

Included	Element	Description
✓	Defined and Listed Waste Appraisal	Desktop appraisal of whether the waste is defined under Schedule 3 of the NEM: WAA and/or listed in Annexure 1 of GN R634. Wastes either defined or listed do not necessarily require classification in terms of SANS 10234.
✓	Appraisal of Disposal Prohibitions	Determination of possible disposal prohibitions in terms of GN R636.
✓	Waste Type Profiling for Landfill Disposal	Profiling in accordance with GN R635 and/or Waste Acceptance Criteria as detailed in GN R636.
\checkmark	Classification	Quantitative classification in broad accordance with SANS 10234.
×	Safety Data Sheet	A Safety Data Sheet (SDS) is required for all hazardous waste (excluding Health Care Risk Waste) in terms of GN R634.

Waste Description

Process Origin	Chemical Inputs	Physical Characteristics
N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	None known	Solid

Defined Waste Appraisal

Listed in Schedule 3 of NEM: WAA	Yes
Descriptor	Category A: Wastes resulting from exploration, mining quarrying, and physical and chemical treatment of minerals (a) wastes from mineral excavation.
1. The above descriptor also takes account of the proceeding classification	



Listed Waste Appraisal

Listed in Annexure 1 of GN R634	No
Descriptor	Not applicable
1. Not categorically listed in GN R634	4

Sampling and Laboratory Analysis

Sampler	Date	Comments		
WSP	February 2023	Representative samples were collected by W analysis.	/SP and subr	mitted for
Analytical Suite		М	atrix	
			Total	Leachate
Metals and me	etalloids, as listed in Gl	N R635		
Antimony, arse	nic, barium, boron, cadm	nium, chromium (total and hexavalent), cobalt,	\checkmark	1
copper, lead, m	nanganese, mercury, mo	lybdenum, nickel, selenium, vanadium, and	v	v
zinc				
Inorganics, as	listed in GN R635			
Chloride, nitrate	e, sulphate, and Total Dis	ssolved Solids	N/A	\checkmark
Cyanide and flu	uoride		\checkmark	\checkmark
Organics, as l	isted in GN R635			
Benzene, tolue	ne, ethylbenzene, and x	ylenes (BTEX)	×	×
Petroleum hydr	rocarbons		×	N/A
Polychlorinated	l Biphenyls (PCB)		×	×
Polycyclic Aromatic Hydrocarbons (PAH)		×	N/A	
Volatile and Semi-Volatile Organic Compounds (VOC and SVOC)		×	×	
Pesticides, as	listed in GN R635			
Aldrin + Dieldri			×	×
DDT + DDD + I	DDE		×	×
2,4-D			×	×
Chlordane		×	×	
Heptachlor			×	×
	neters, to support class	sification and disposal restriction appraisal.		
Calorific Value			×	×
Flashpoint			×	×
Mineral Oil			×	×
Moisture Conte	ent		×	*
рН			√ ∽	N/A
Total Organic C			×	×
	y Parameters reasonab			
Aluminium, cale	cium, iron, magnesium, p	ootassium, sodium, and phosphorous	×	×

Notes to Laboratory Analysis

1. N/A – Not applicable

2. As per GN R635, leachate was prepared using reagent water applicable to a mono-disposal scenario.

3. Whilst not all the substances above are likely to be present, the suite represents those determinants listed within the variously applicable Norms and Standards alongside other parameters that are expected.

4. It should be noted that pesticides have been omitted from the analytical suite as it is unreasonable to suspect their presence within the stream.

5. Laboratory certificate of analysis provided within **Appendix A** including details of any analysis unable to be completed based on the sample matrix.



Appraisal of Disposal Prohibitions

Restrictive Condition	Description
None identified	N/A

Waste Type Profiling for Landfill Disposal¹

Waste Type	Landfill Class
Туре 3	Class C

1. Refer to Appendix B for indicative profiling assessment.

 Type Profiling is based on consideration of total and leachate concentrations of substances published in Paragraph 6 of GN R635 and the appropriate landfill class is determined with reference to the Waste Acceptance Criteria in Paragraph 4 of GN R636.

3. While reference is made in GN R634 to the application of SANS 10234 classification to Waste Type Profiling, the then Department of Environmental Affairs (DEA) confirmed during stakeholder engagement that Hazard Statement Codes for transportation and handling are not intended to be utilised for Waste Type Profiling for landfill disposal.

SANS 10234 Classification

Hazardous	Non-Hazardous ✓

- 1. Refer to **Appendix C** for the quantitative screening classification.
- Assumptions in terms of the chemical form (speciation) in which elemental components of the waste stream are likely to occur have generally been conservative considering plausible thermodynamic and mineralogical assemblages.
- 3. Where applicable to the sample medium, results of laboratory analysis have been corrected according to sample-specific moisture content.
- 4. Where SANS 10234 guidance is either not available, unclear, or relatively incomplete, cognisance has been taken of European Regulation (EC) No. 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) that adopts, within the European community, the GHS as published by the United Nations Social and Economic Council.
- Hazard Statement Codes for the substances have been sourced from either the supplement to SANS 10234:2008 Edition 1, Table 3.1 of Annex VI of the CLP Regulations, or the European Chemicals Agency, Classification & Labelling Inventory Database.
- 6. Cognisance must be taken of the need to reclassify the waste every five years, or if the generation process changes or, otherwise, if more data becomes available.

Safety Data Sheet

Required	No		

Appendices

Appendix	Title
Α	Laboratory Analytical Certificates
В	Type Profiling Assessment (GN R635/636)
С	Screening Material Classification (SANS 10234)

¹ Subject to any prohibitions



Waiver

The Waste Management Summary Report (Report) has been prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf and at the request of Seriti Coal (Pty) Ltd (Client), to provide the Client with an understanding of the Relevant Documents.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report except where otherwise indicated.

Authorisation

Shameer Hareeparsad Principal Associate Shameer.Hareeparsad@wsp.com

Appendix A

LABORATORY ANALYTICAL CERTIFICATES

CONFIDENTIAL



Element Materials Technology Unit D2 & D5 9 Quantum Road Firgrove Business Park Somerset West 7130 South Africa

W: www.element.com

WSP Group Africa Building C, Knightsbridge 33 Sloane Street Bryanston Johannesburg Gauteng South Africa 2191

Attention :	Shameer Hareeparsad
Date :	3rd March, 2023
Your reference :	21465149
Our reference :	Test Report 23/107 Batch 1
Location :	Seriti New Largo
Date samples received :	21st February, 2023
Status :	Final report
Issue :	1

Ten samples were received for analysis on 21st February, 2023 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Analysis was undertaken at either Element Materials Technology UK, which is ISO 17025 accredited under UKAS (4225) or Element Materials Technology (SA) which is ISO 17025 accredited under SANAS (T0729) or a subcontract laboratory where specified.

NOTE: Under International Laboratory Accreditation Cooperation (ILAC), ISO 17025 (UKAS) accreditation is recognised as equivalent to SANAS (South Africa) accreditation.

Authorised By:

Jeanri Stevens Laboratory Supervisor

Inorganics Laboratory:

Aubrey Lindi Technical Signatory (Inorganics)

Please include all sections of this report if it is reproduced

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023			
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt					21/02/2023			21/02/2023			LOD/LOR	Units	Method No.
Antimony*	1	2	<1	<1	<1	1	3	3	2	2	<1	mg/kg	UK_TM30/UK_PM15
Arsenic*	6.9	6.5	1.4	6.1	4.5	5.3	4.1	3.8	8.8	11.5	<0.5	mg/kg	UK_TM30/UK_PM15
Barium*	116	150	99	99	170	571	136	121	472	388	<1	mg/kg	UK_TM30/UK_PM15
Cadmium*	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	UK_TM30/UK_PM15
Chromium*	30.1	28.2	6.9	25.1	28.3	42.4	88.1	48.8	42.1	47.0	<0.5	mg/kg	UK_TM30/UK_PM15
Cobalt*	11.5	91.5	1.1	13.0	16.6	18.0	17.7	17.3	24.4	15.9	<0.5	mg/kg	UK_TM30/UK_PM15
Copper*	45	53	14	49	46	15	28	18	51	56	<1	mg/kg	UK_TM30/UK_PM15
Lead* Manganese*	22 730	36 1197	21 74	26 62	28 450	7 1662	18 496	17 576	31 818	29 387	<5 <1	mg/kg mg/kg	UK_TM30/UK_PM15 UK_TM30/UK_PM15
Mercury*	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	mg/kg	UK TM30/UK PM15
Molybdenum*	1.3	5.2	0.1	0.2	0.7	1.3	0.8	0.8	1.8	2.2	<0.1	mg/kg	UK_TM30/UK_PM15
Nickel*	22.7	144.0	5.1	15.2	27.3	19.9	29.4	29.8	43.0	41.0	<0.7	mg/kg	UK_TM30/UK_PM15
Selenium*	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	UK_TM30/UK_PM15
Vanadium*	49	65	11	26	91	20	68	56	72	64	<1	mg/kg	UK_TM30/UK_PM15
Boron (Aqua Regia Soluble)*	2.87	6.40	12.36	6.42	10.91	0.54	<0.25	<0.25	1.08	1.86	<0.25	mg/kg	UK_TM30/UK_PM15
Zinc*	131	159	<5	142	105	56	110	120	197	130	<5	mg/kg	UK_TM30/UK_PM15
Fluoride	0.7	1.5	0.7	0.5	1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	SA_TM27/SA_PM20
Hexavalent Chromium*	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	<0.3	<0.3	<0.3	<0.3	mg/kg mg/kg	UK_TM38/UK_PM20
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0		
Total Cyanide*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	UK_TM89/UK_PM45

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : ASLP (20:1) - Reagent Water

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and ad	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date			20/02/2023	20/02/2023		20/02/2023							
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt													
Dissolved Antimony*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Arsenic* Dissolved Barium*	<2.5 289	<2.5 257	<2.5 214	<2.5 229	<2.5 161	<2.5 272	<2.5 231	<2.5 274	<2.5 246	<2.5 272	<2.5 <3	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Boron*	289	237	15	229	24	50	69	63	88	72	<12	ug/l ug/l	UK_TM30/UK_PM14
Dissolved Cadmium*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	UK_TM30/UK_PM14
Dissolved Chromium*	<1.5	<1.5	<1.5	<1.5	<1.5	2.1	<1.5	<1.5	1.9	2.7	<1.5	ug/l	UK_TM30/UK_PM14
Dissolved Cobalt*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Copper*	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	UK_TM30/UK_PM14
Dissolved Lead*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	UK_TM30/UK_PM14
Dissolved Manganese*	<2	<2	<2	<2	<2	34	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Mercury*	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	ug/l	UK_TM30/UK_PM14
Dissolved Molybdenum*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Nickel*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Selenium* Dissolved Vanadium*	<3 1.7	<3 <1.5	<3 <1.5	<3 2.4	<3 <1.5	<3 <1.5	<3 <1.5	<3 3.2	<3 2.0	<3 3.9	<3 <1.5	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Zinc*	7	11	10	11	14	20	14	17	12	3.9 18	<1.5	ug/l ug/l	UK_TM30/UK_PM14
	,		10		14	20			12	10	-0	ugn	
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Chloride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	0.4	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Sulphate	2.9	1.9	1.2	3.1	0.8	2.7	2.9	2.4	2.7	2.5	<0.5	mg/l	SA_TM27/SA_PM0
Nitrate as N	0.07	<0.05	<0.05	0.11	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	mg/l	SA_TM27/SA_PM0
Total Cyanide*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	UK_TM89/UK_PM0
Hexavalent Chromium*	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	UK_TM38/UK_PM0
Total Dissolved Solids	<35	<35	<35	38	<35	65	36	102	136	84	<35	mg/l	SA_TM20/SA_PM80
pH	6.99	6.98	7.91	8.58	7.36	7.78	7.28	8.65	8.13	7.88	<2.00	pH units	SA_TM19/SA_PM0
			-			-	-						

Client Name:	WSP Group Africa
Reference:	21465149
Location:	Seriti New Largo
Contact:	Shameer Hareeparsad

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason							
	No deviating sample report results for job 23/107												

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/107

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation. Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/107

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
SA_TM19	Determination of pH by bench pH meter	SA_PM0	No preparation is required.			AR	No
SA_TM20	Modified BS 1377-3: 1990 Gravimetric determination of Total Dissolved Solids	SA_PM80	A 20:1 ratio of leaching fluid to as received soil, is leached for 18 hours. The client can choose to use any of the following leaching fluids a) deionised water b) pH5 c) pH 5/pH2.9 depending on pH of sample d) pH9.2			AR	No
SA_TM27	Major ions by lon Chromatography	SA_PM0	No preparation is required.				
SA_TM27	Major ions by lon Chromatography	SA_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a orbital shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a orbital shaker.			AD	Yes
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				No
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.				Yes
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM0	No preparation is required.				No
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.				Yes
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM0	No preparation is required.				No
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.				Yes

Appendix B

TYPE PROFILING

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11.



Waste Type Profiling and Disposal Prohibition Appraisal Based on National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN R635 of 2013) together with National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)

Source of Waste:		oal (Pty) Ltd, 1	N4 and N12 hig	ghways between Bronkh	orstspruit and eMalahleni tov	wns, Sample D	- Sandstone		1.10.4		
Waste Matrix (Liquid / Solid): Leachate Preparation (Solids Only):		ole (Mono-Disp	osal): Reagent	Water				Арр	raisal Date:	May 2023	
Substance	С ТСТ0	oncentratio TCT1	n (ppm) - So TCT2	olid/Total Assessed	Waste Type (based on TCTs only; subject t		Concentra	tion (ppm LCT2) - Leachat LCT3	te/Liquid Assessed	Waste Type (based on LCTs only;
Metal Ions	1010	1011	1012	Concentration	LCTs)	LCIU	Len	LUIZ	LC15	Concentration	subject to TCTs)
Arsenic	5.8	500	2000	6.1	Type 3	0.01	0.5	1	4		
Boron Barium	150 62.5	15000 6250	60000 25000	6.42 99	Type 4 Type 3	0.5	25 35	50 70	200 280	0.021 0.229	Type 4 Type 4
Cadmium	7.5	260	1040	0.3	Type 4	0.003	0.15	0.3	1.2	0.229	Type 4
Cobalt	50	5000	20000	13	Type 4	0.5	25	50	200		
Chromium Chromium (Hexavalent)	46000 6.5	800000 500	- 2000	25.1	Type 4	0.1	5 2.5	10 5	40 20		
Copper	16	19500	78000	49	Type 3	2	100	200	800		
Mercury	0.93	160	640			0.006	0.3	0.6	2.4		
Manganese Molybdenum	1000 40	25000 1000	100000 4000	62 0.2	Type 4 Type 4	0.5	25 3.5	50	200 28		
Nickel	91	10600	42400	15.2	Type 4	0.07	3.5	7	28		
Lead Antimony	20 10	1900 75	7600 300	26	Type 3	0.01 0.02	0.5	1	4		
Selenium	10	50	200			0.02	0.5	1	4		
Vanadium	150	2680	10720	26	Type 4	0.2	10	20	80	0.0024	Type 4
Zine Inorganic Anions	240	160000	640000	142	Type 4	5	250	500	2000	0.011	Type 4
Fotal Dissolved Solids	-	-		No	Applicable	1000	12500	25000	100000	38	Type 4
Chloride	-	-	-		Applicable	300	15000	30000	120000		
Sulphate	-	-	-	Not	Applicable	250	12500	25000	100000		
Nitrate	-	-	-		Applicable	11	550	1100	4400	0.4873	Type 4
Fluoride Cyanide	100 14	10000	40000 42000	0.5	Type 4	1.5	75 3.5	150 7	600 28		
Organics		10000	12000			0.07	5.5		20		
Benzene	-	10	40			-	0.01	0.02	0.08		
Benzo(a)pyrene Carbon tetrachloride	-	1.7	6.8 16			-	0.035	0.07 0.4	0.28		
Chlorobenzene	-	8800	35200			-	5	10	40		
Chloroform 2-Chlorophenol	-	700 2100	2800 8400			-	15 15	30 30	120 120		
2-Chlorophenol Bis(2-ethylhexyl)phthalate	-	40	8400 160			-	0.5	1	4		
1,2-Dichlorobenzene	-	31900	127600			-	5	10	40		
1,4-Dichlorobenzene 1,2-Dichloroethane	-	18400 3.7	73600 14.8			-	15	30 3	120 12		
1,1-Dichloroethene	-	150	600			-	0.35	0.7	2.8		
1,2-Dichloroethene	-	3750	15000 64				2.5 0.25	5 0.5	20		
Dichloromethane 2,4-Dichlorophenol	-	16 800	3200			-	10	20	80		
2,4-Dinitrotoluene	-	5.2	20.8				0.065	0.13	0.52		
Ethylbenzene Formaldehyde	-	540 2000	2160 8000				3.5 25	7 50	28 200		
Hexachlorobutadiene	-	2.8	5.4			-	0.03	0.06	0.24		
Methyl Ethyl Ketone (2-Butanone)	-	8000	32000				100	200	800		
Methyl Tertiary Butyl Ether Nitrobenzene	-	1435 45	5740 180				2.5	5	20 8		
Total PAHs	-	50	200				-	-	-	Not A	pplicable
>C6-C9	-	650	2600				-	-	-		pplicable
>C10-C36	-	10000	40000			-	-	-	-	Not A	pplicable
Phenol Polychlorinated Biphenyls (PCBs)	-	560 12	2240 48				0.025	14 0.05	56 0.2		
Styrene	-	120	480				1	2	8		
1,1,1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane	-	400 5	1600 20			-	5 0.65	10	40 5.3		
Tetrachloroethene	-	200	800			-	0.25	0.5	2		
Toluene Trichlorobenzenes (Sum)	-	1150 3300	4600 13200			-	35 3.5	70	280 28		
1,1,1-Trichloroethane	-	1200	4800			-	3.5	30	120		
1,1,2-Trichloroethane	-	48	192			-	0.06	1	4		
Trichloroethene 2,4,6-Trichlorophenol	-	11600 1770	46400 7080				0.25	2 20	8 80		
Vinyl chloride	-	1.5	6				0.015	0.03	0.12		
Xylenes (Sum)	-	890	3560			-	25	50	200		
Pesticides Aldrin + Dieldrin	0.05	1.2	4.8			-	0.015	0.03	0.03		
DDT + DDD + DDE	0.05	50	200			-	1	2	2		
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane	0.05	120	480 16			-	1.5	3 0.1	3		
Heptachlor	0.05	1.2	4.8			-	0.05	0.1	0.1		
Supplementary				Type 4 Waste Ty	pe	1 76. 0	wants to .	date	Not	es st conservative type cal	ulated for
Organics			(mg/kg), un	Assessed	Satisfy					st conservative type cale tal (TCT) or Leachable	
		Threshold		Concentration	Type 4					for any given substance	
			T0 & LCT0):		No					file), the final waste typ a simultaneously.	e is determined by
		ntrations <tc< td=""><td>T0 & LCT0):</td><td>As above</td><td>Yes To Clarify</td><td>3. Only whe</td><td>ere laborator</td><td>y analysis ho</td><td>is resulted in</td><td>positive identification of</td><td>of substances (i.e. above</td></tc<>	T0 & LCT0):	As above	Yes To Clarify	3. Only whe	ere laborator	y analysis ho	is resulted in	positive identification of	of substances (i.e. above
Total Organic Carbon BTEX (Sum)	(%)	6	5		To Clarify To Clarify						ive TCTs and LCTs (i.e. of detection have been
Polychlorinated Biphenyls (PCBs)		1			To Clarify To Clarify	assumed to	be absent).			-	-
Mineral Oil (>C10-C40)		500			To Clarify					g of liquid wastes is un quid media to the LCT	
Pesticides							es cannot pro				
Aldrin + Dieldrin		0.05			To Clarify To Clarify						
DDT + DDD + DDE 2,4-Dichlorophenoxyacetic Acid (2,4-D)		0.05			To Clarify To Clarify						
Chlordane		0.05			To Clarify						
Heptachlor		0.05			To Clarify						
Overall Screened Waste Type (notwithstand	ng potential d	isposal prohib	itions, see belo	w)		Category o	f Landfill (G	N R636 of 2	013)		
overan sereened waste Type (notwanstand						Class	C / G]	LB+			
						Class	<u>e</u> 7 0				
Type 3 Waste					-1						
Type 3 Waste Physicochemical Disposal Prohibition	S (notwithstand			ssociated with Waste Type			6 4.4				
Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm		PCBs (ppm):			Not assessed or less than lab	ooratory limit o	f detection				
Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm Explosive, corrosive or oxidising according t		PCBs (ppm):		ssociated with Waste Type No		poratory limit o	of detection				
Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm Explosive, corrosive or oxidising according to pH < 6 or >12 Flashpoint <61° Celsius	o SANS 10234 Fl	PCBs (ppm): pH: ashpoint (°C):			Not assessed or less than lab Not applicable Not assessed Not assessed	poratory limit o	f detection				
Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm Explosive, corrosive or oxidising according to pH <6 or >12 Flashpoint <61° Celsius Moisture Content > 40%	o SANS 10234 Fl	PCBs (ppm): pH: ashpoint (°C): Content (%):		No	Not assessed or less than lat Not applicable Not assessed Not assessed Not assessed or 0%	poratory limit o	f detection				
Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm Explosive, corrosive or oxidising according to pH < 6 or >12 Flashpoint <61° Celsius	o SANS 10234 Fl	PCBs (ppm): pH: ashpoint (°C):			Not assessed or less than lab Not applicable Not assessed Not assessed	poratory limit o	of detection				
Type 3 Waste Physicochemical Disposal Prohibition PCBs > 50ppm Explosive, corrosive or oxidising according to pH <6 or >12 Flashpoint <61° Celsius Moisture Content > 40% Hazardous with Calorific Value >10MJ/kg	o SANS 10234 Fl	PCBs (ppm): pH: ashpoint (°C): Content (%): CV (MJ/kg):	N/A	No	Not assessed or less than lat Not applicable Not assessed Not assessed or 0% Not applicable		of detection				

Appendix C

CLASSIFICATION

CONFIDENTIAL

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11.



WSP Reference: 41105637	Prepared For: Seriti Coal (Pty) Ltd
Generator: New Largo Coal (Pty) Ltd	Assessment Date: May 2023
Source Address: N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	
Production Process: Sample D - Sandstone	

General Appearance	Classification Summary
Soil	Not Hazardous (General)

Potential Hazard Statement Codes of Relevance

Composition & Quantitative Classification

Composition assessed in general accordance with the following hierarchy:

1. South African National Standard, Globally Harmonised System of Classification and Labelling of Chemicals (GHS), SANS 10234:2019, Edition 2

2. European Regulation (EC) No. 1272/2008, 'Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation)

Hazard Statement Codes for individual compounds are sourced from:

1. Supplement to SANS 10234:2008 Edition 1

2. Table 3.1 of Annex VI of the CLP Regulations

3. European Chemicals Agency, Classification & Labelling Inventory Database

4. Product (Material) Safety Data Sheet

Where relevant, recorded concentrations have been converted from dry weight values to account for the recorded moisture content of material.

Quantitative screening assessment of individual Hazard Statement Codes presented on the following pages.

Hazard Statement	Hazard Statement	Generic Cut- Off Value	Off Value	Generic Cut-Off Value and Test Comments	Assessment Concentration	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
Code		(%)	(ppm)	PHYSICAL HAZARD	(ppm) STATEMENTS			
H200	Unstable explosive	0	0	If >0% then classified under H200 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H201	Explosive; mass explosion hazard	0	0	If >0% then classified under H201 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H202	Explosive; severe projection hazard	0	0	If >0% then classified under H202 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H203	Explosive; fire, blast or projection hazard	0	0	If >0% then classified under H203 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H204	Fire or projection hazard	0	0	If >0% then classified under H204 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H205	May mass explode in fire	0	0	If >0% then classified under H205 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H220	Extremely flammable gas	0	0	If >0% then classified under H220 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H221	Flammable gas	0	0	If >0% then classified under H221 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H222	Extremely flammable aerosol	0	0	If >0% then classified under H222 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H223	Flammable aerosol	0	0	If >0% then classified under H223 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H224	Extremely flammable liquid and vapour	0	0	If >0% then classified under H224 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H225	Highly flammable liquid and vapour	0	0	If >0% then classified under H225 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H226	Flammable liquid and vapour	0	0	If >0% then classified under H226 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H227	Combustible liquid	0	0	If >0% then classified under H227 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H228	Flammable solid	0	0	If >0% then classified under H228 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H229	Pressurised container: may burst if heated	0	0	Relevant only for pressurised containers	Not applicable	Not applicable	No	
H230	May react explosively even in the absence of air	0	0	If >0% then classified under H230 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H231	May react explosively even in the absence of air at elevated pressure and/or temperature	0	0	If >0% then classified under H231 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H240	Heating may cause an explosion	0	0	If >0% then classified under H240 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H241	Heating may cause a fire or explosion	0	0	If >0% then classified under H241 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H242	Heating may cause a fire	0	0	If >0% then classified under H242 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)
H250	Catches fire spontaneously if exposed to air	0	0	If >0% then classified under H250 unless further information and/or testing proves otherwise	71.00	Potential to catch fire spontaneously if exposed to air: detailed assessment required	Not likely at recorded concentration
H251	Self-heating; may catch fire	0	0	If >0% then classified under H251 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
H252	Self-heating in large quantities; may catch fire	0	0	If >0% then classified under H252 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
		0	0	If >0% then classified under H260 unless further information and/or testing proves otherwise	35.50	Assessment, see below	Substance- specific assessments: see below
		0.0076	76.1	<u>Element-specific assessment</u> Concentration of aluminium phosphide required to evolve sufficient volume of phosphine in contact with water to potentially render hazardous; based on stoichiometry	No analysis for aluminium	Not applicable	No
260	In contact with water releases flammable gases that may ignite spontaneously	0.108	1076	<i>Element-specific assessment</i> Concentration of free magnesium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for magnesium	Not applicable	No
		0.346	3463	<u>Element-specific assessment</u> Concentration of free potassium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for potassium	Not applicable	No
		0.204	2036	<u>Element-specific assessment</u> Concentration of free sodium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for sodium	Not applicable	No
		0	0	If >0% then classified under H261 unless further information and/or testing proves otherwise	49.50	Assessment, see below	Substance- specific assessments: see below
261	In contact with water	0.608	6082	<u>Element-specific assessment</u> Concentration of free barium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	99.00	Unlikely to generate hazardous volume of hydrogen	No
261	releases flammable gas	0.177	1775	<u>Element-specific assessment</u> Concentration of free calcium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for calcium	Not applicable	No

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
		0	0	<u>Compound-specific assessment</u> Ferrosilicon may evolve sufficient hydrogen in contact with water to render hazardous; based on ratio of iron:silicon	Ferrosilicon not identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H270	May cause or intensify fire; oxidiser	0	0	If >0% then classified under H270 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H271	May cause fire or explosion; strong oxidiser	0	0	If >0% then classified under H271 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H272	May intensify fire; oxidiser	0	0	If >0% then classified under H272 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H280	Contains gas under pressure; may explode if heated	0	0	If >0% then classified under H280 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H281	Contains refrigerated gas; may cause cryogenic burns or injury	0	0	If >0% then classified under H281 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H290	May be corrosive to metals	0	0	If contributing substance >0% then conservatively classified under H290 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
				HEALTH HAZARD S	STATEMENTS			
H300	Fatal if swallowed	1	10000	If cumulative/additive concentrations of contributing substances >1% then conservatively classified under H300 (Category 1 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H301	Toxic if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H301 (Category 3 Acute Toxicity: Oral); pending further assessment	6.10	Further assessment not necessary	No	
H302	Harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H302 (Category 4 Acute Toxicity: Oral); pending further assessment	6.42	Further assessment not necessary	No	
H303	May be harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H303 (Category 5 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H304	May be fatal if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% then conservatively classified under H304 (Aspiration Hazard, Category 1); pending further assessment	No substances identified	Not applicable	No	
H305	May be harmful if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% classified under H305 (Aspiration Hazard, Category 2); pending further assessment	No substances identified	Not applicable	No	
H310	Fatal in contact with skin	1	10000	If cumulative/additive >1% classified under H310 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H311	Toxic in contact with skin	1	10000	If individual substance >1% classified under H311 (Category 3 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
Н312	Harmful in contact with skin	1	10000	If individual substance >1% classified under H312 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H313	May be harmful in contact with skin	1	10000	If individual substance >1% classified under H313 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H314	Causes severe skin burns and eye damage	1	10000	If cumulative/additive >1% classified under H314 (Category 1 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
	buins and cyc damage	≤2 pH U	nits ≥ 11.5	<u>pH-specific assessment</u> If ≤ 2 or ≥ 11.5 pH then classified as corrosive	pH not determined	Not applicable	Unclarified	
H315	Causes skin irritation	1	10000	If cumulative/additive >1% classified under H315 (Category 3 Skin Corrosion/Irritant), >10% then Category 2; pending further assessment	99.00	Further assessment not necessary	No	
H316	Causes mild skin irritation	10	100000	If cumulative/additive >10% classified under H316 (Category 3 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
H317	May cause an allergic skin reaction	0.1	1000	If individual substance ≥0.1% classified under H317 (Category 1 Skin Sensitisation); pending further assessment	15.20	Further assessment not necessary	No	
H318	Causes serious eye damage	1	10000	If cumulative/additive >1% classified under H318 (Category 2 Skin/Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H319	Causes serious eye irritation	10	100000	If cumulative/additive >10% classified under H319 (Category 2 Eye Sensitisation); pending further assessment	99.00	Further assessment not necessary	No	
H320	Causes eye irritation	10	100000	If cumulative/additive >10% classified under H320 (Category 2 Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H330	Fatal if inhaled	1	10000	If cumulative/additive >1% classified under H330 (Category 1 Acute Toxicity); pending further assessment	0.300	Further assessment not necessary	No	
H331	Toxic if inhaled	1	10000	If individual substance >1% classified under H331 (Category 3 Acute Toxicity); pending further assessment	6.10	Further assessment not necessary	No	
Н332	Harmful if inhaled	1	10000	If individual substance >1% classified under H332 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н333	May be harmful if inhaled	1	10000	If individual substance >1% classified under H333 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	0.1	1000	If individual substance >0.1% classified under H334 (Category 1 Respiratory Sensitisation); pending further assessment	13.00	Further assessment not necessary	No	
Н335	May cause respiratory irritation	20	200000	If cumulative/additive >20% classified under H335 under Generic Limits; pending further assessment	99.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H336	May cause drowsiness or dizziness	20	200000	If cumulative/additive >20% classified under H336 under Generic Limits; pending further assessment	No substances identified	Not applicable	No	
H340	May cause genetic defects	0.1	1000	If individual substance >0.1% classified under H340 (Category 1 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H341	Suspected of causing genetic defects	1	10000	If individual substance >1% classified under H341 (Category 2 Mutagen); pending further assessment	0.30	Further assessment not necessary	No	
H350	May cause cancer	0.1	1000	If individual substance >0.1% classified under H350 (Category 1 Carcinogen); pending further assessment	0.30	Further assessment not necessary	No	
H351	Suspected of causing cancer	0.1	1000	If individual substance >0.1% classified under H351 (Category 2 Carcinogen); pending further assessment	15.20	Further assessment not necessary	No	
H360	May damage fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H360 (Category 1 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361	Suspected of damaging fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H361 (Category 2 Teratogen); pending further assessment	0.30	Further assessment not necessary	No	
H361d	Suspected of damaging the unborn child	0.1	1000	If individual substance >0.1% classified under H361d; pending further assessment	No substances identified	Not applicable	No	
H362	May cause harm to breast-fed children	0.1	1000	If individual substance >0.1% classified under H362 (Additional Category Teratogen); pending further assessment	No substances identified	Not applicable	No	
H370	Causes damage to organs	1	10000	If individual substance >1% classified under H370 (Category 1 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H371	May cause damage to organs	1	10000	If individual substance >1% classified under H371 (Category 2 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H372	Causes damage to organs through prolonged or repeated exposure	1	10000	If individual substance >1% classified under H372 (Category 1 Repeat Exposure); pending further assessment	15.20	Further assessment not necessary	No	
11272	May cause damage to organs through	1	10000	If individual substance >1% classified under H373 (Category 2 Repeat Exposure); pending further assessment	No substances identified	Not applicable	No	
H3/3 pro	prolonged or repeated exposure	0.005	50	<u>PCB-specific assessment</u> If PCBs are present >0.005% then classified hazardous under H373	No analysis for PCBs	Not applicable	Unclarified: not anticipated	
				ENVIRONMENTAL HAZA	ARD STATEMEN	ГS		
H400	Very toxic to aquatic life	1	10000	If cumulative/additive >1% classified under H400 (Category 1 Acute Aquatic Toxicity); pending further assessment	148.40	Further assessment not necessary	No	
H401	Toxic to aquatic life	25	250000	If modified cumulative/additive >25% classified under H401 (Category 2 Acute Aquatic Toxicity); pending further assessment	1484.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H402	Harmful to aquatic life	25	250000	If modified cumulative/additive >25% classified under H402 (Category 3 Acute Aquatic Toxicity); pending further assessment	14840.00	Further assessment not necessary	No	
H410	Very toxic to aquatic life with long lasting effects	1	10000	If cumulative/additive >1% classified under H410 (Category 1 Chronic Aquatic Toxicity); pending further assessment	148.40	Further assessment not necessary	No	
H411	Toxic to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H411 (Category 2 Chronic Aquatic Toxicity); pending further assessment	1484.00	Further assessment not necessary	No	
H412	Harmful to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H412 (Category 3 Chronic Aquatic Toxicity); pending further assessment	14855.20	Further assessment not necessary	No	
H413	May cause long lasting harmful effects to aquatic life	25	250000	If modified cumulative/additive >25% classified under H413 (Category 4 Chronic Aquatic Toxicity); pending further assessment	176.60	Further assessment not necessary	No	
H420	Harms public health and the environment by destroying ozone in the upper atmosphere	0.1	1000	If individual substance >0.1% classified under H420 (Category 1). Substances based on Annexes to the Montreal Protocol.	No substances identified	Not applicable	No	
Assumptions	and Comments							

1. Acute Toxicity Estimates (ATE) have not been derived from LD50 data or conversion factors presented in SANS 10234; screening classification has been based on generic cut-off values. Where more detailed assessment is recommended, appropriate LD50 should be sourced based on current available data.

2. Ecotoxicity for Category 1 Acute and Chronic Hazards have assumed 1% threshold and additive compounds rather than utilisation of Weighting Factor/s presented in SANS 10234. Where more detailed assessment is recommended, this should follow the mixture-specific principles defined in SANS 10234.

3. Classification does not include European Union (EU), or other territory-specific, Hazard Statement Codes that may be applicable outside of the Republic of South Africa.

4. Only where data is presented, or where laboratory analysis has resulted in positive identification of substances (i.e. above laboratory limits of detection), have the applicable Hazard Statement Codes been appraised (i.e. substances determined to be at concentrations less than laboratory limits of detection have been assumed to be absent).

5. Unless exact speciation has been established through detailed analysis, classification has been based on reasonable assumptions of substances most-likely present based on expected behaviour within the material. It is recognised that this may not be applicable in all instances and, for clarity, a list of the individual substances appraised where assumptions have been made are listed below.

6. Where laboratory analysis has reported concentrations on a dry weight basis these have been converted to take account of sample moisture content using the formula:

Wet Weight Concentration = Dry Weight Concentration x ((100 - % moisture content)/100).

7. Where assessment has been undertaken on liquids, it has been assumed that 1-litre (volume) is equivalent to 1-kg (mass).

8. For additional details in respect of the individual substances that may render any given material type as hazardous, reference should be made to the appropriate Safety Data Sheet (SDS) which takes account of this classification or, if an SDS has not been prepared, the appropriate report relevant for this classification.

9. To the best of our knowledge, the information contained herein is accurate; however, WSP assumes no liability whatsoever for its accuracy or completeness. The classification of any material, and its appropriate management, remains the responsibility of the generator. All materials may present unknown hazards. Although certain hazards are described herein, it cannot be guaranteed that these are the only hazards that exist, or that these have been recognised in full.

List of Assumed Substances, where necessary

Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Vanadium, Zinc,



WASTE MANAGEMENT SUMMARY REPORT

WASTE IDENTIFICATION	Sample E – Sandstone
SOURCE	New Largo Coal (Pty) Ltd
DATE OF ASSESSMENT	March 2024

Relevant Regulations and Standards

- ✓ National Environmental Management: Waste Act (NEM: WA, 2008)
- ✓ National Environmental Management: Waste Amendment Act (NEM: WAA, 2014)
- ✓ National Environmental Management Laws Amendment Act (NEMLAA, 2022)
- ✓ Waste Classification and Management Regulations (GN R634 of 2013)
- ✓ Regulations for Hazardous Chemical Agents (GG 44366, 2021)
- ✓ National Norms and Standards for the Assessment of Waste to Landfill Disposal (GN R635 of 2013)
- ✓ National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)
- ✓ South African National Standard (SANS) 10234:2019, Globally Harmonised System of Classification and Labelling of Chemicals (GHS) (SANS 10234)
- ✓ South African National Standard (SANS) 11014:2010, Safety Data Sheet for Chemical Products Content and Order of Sections (SANS 11014)

Scope

Included	Element	Description
✓	Defined and Listed Waste Appraisal	Desktop appraisal of whether the waste is defined under Schedule 3 of the NEM: WAA and/or listed in Annexure 1 of GN R634. Wastes either defined or listed do not necessarily require classification in terms of SANS 10234.
✓	Appraisal of Disposal Prohibitions	Determination of possible disposal prohibitions in terms of GN R636.
✓	Waste Type Profiling for Landfill Disposal	Profiling in accordance with GN R635 and/or Waste Acceptance Criteria as detailed in GN R636.
\checkmark	Classification	Quantitative classification in broad accordance with SANS 10234.
×	Safety Data Sheet	A Safety Data Sheet (SDS) is required for all hazardous waste (excluding Health Care Risk Waste) in terms of GN R634.

Waste Description

Process Origin	Chemical Inputs	Physical Characteristics
N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	None known	Solid

Defined Waste Appraisal

Listed in Schedule 3 of NEM: WAA	Yes
Descriptor	Category A: Wastes resulting from exploration, mining quarrying, and physical and chemical treatment of minerals (a) wastes from mineral excavation.
1. The above descriptor also takes ad	count of the proceeding classification



Listed Waste Appraisal

Listed in Annexure 1 of GN R634	No
Descriptor	Not applicable
1. Not categorically listed in GN R634	4

Sampling and Laboratory Analysis

Sampler	Date	Comments		
WSP	February 2023	Representative samples were collected by W analysis.	/SP and subr	mitted for
Analytical Suit	te		М	atrix
			Total	Leachate
Metals and me	etalloids, as listed in Gl	N R635		
Antimony, arse	nic, barium, boron, cadm	nium, chromium (total and hexavalent), cobalt,	\checkmark	1
copper, lead, m	nanganese, mercury, mo	lybdenum, nickel, selenium, vanadium, and	v	v
zinc				
Inorganics, as	listed in GN R635			
Chloride, nitrate	e, sulphate, and Total Dis	ssolved Solids	N/A	\checkmark
Cyanide and flu	uoride		\checkmark	\checkmark
Organics, as l	isted in GN R635			
Benzene, tolue	ne, ethylbenzene, and x	ylenes (BTEX)	×	×
Petroleum hydr	×	N/A		
Polychlorinated	×	×		
Polycyclic Aron	×	N/A		
Volatile and Se	mi-Volatile Organic Com	pounds (VOC and SVOC)	×	×
Pesticides, as	listed in GN R635			
Aldrin + Dieldri			×	×
DDT + DDD + I	DDE		×	×
2,4-D			×	×
Chlordane			×	×
Heptachlor			×	×
	neters, to support class	sification and disposal restriction appraisal.		
Calorific Value			×	×
Flashpoint			×	×
Mineral Oil			×	×
Moisture Conte	ent		×	*
рН			√ ∽	N/A
Total Organic C			×	×
	y Parameters reasonab			
Aluminium, cale	cium, iron, magnesium, p	ootassium, sodium, and phosphorous	×	×

Notes to Laboratory Analysis

1. N/A – Not applicable

2. As per GN R635, leachate was prepared using reagent water applicable to a mono-disposal scenario.

3. Whilst not all the substances above are likely to be present, the suite represents those determinants listed within the variously applicable Norms and Standards alongside other parameters that are expected.

4. It should be noted that pesticides have been omitted from the analytical suite as it is unreasonable to suspect their presence within the stream.

 Laboratory certificate of analysis provided within Appendix A including details of any analysis unable to be completed based on the sample matrix.



Appraisal of Disposal Prohibitions

Restrictive Condition	Description
None identified	N/A

Waste Type Profiling for Landfill Disposal¹

Waste Type	Landfill Class
Туре 3	Class C

1. Refer to Appendix B for indicative profiling assessment.

 Type Profiling is based on consideration of total and leachate concentrations of substances published in Paragraph 6 of GN R635 and the appropriate landfill class is determined with reference to the Waste Acceptance Criteria in Paragraph 4 of GN R636.

3. While reference is made in GN R634 to the application of SANS 10234 classification to Waste Type Profiling, the then Department of Environmental Affairs (DEA) confirmed during stakeholder engagement that Hazard Statement Codes for transportation and handling are not intended to be utilised for Waste Type Profiling for landfill disposal.

SANS 10234 Classification

Hazardous	Non-Hazardous ✓

- 1. Refer to **Appendix C** for the quantitative screening classification.
- Assumptions in terms of the chemical form (speciation) in which elemental components of the waste stream are likely to occur have generally been conservative considering plausible thermodynamic and mineralogical assemblages.
- 3. Where applicable to the sample medium, results of laboratory analysis have been corrected according to sample-specific moisture content.
- 4. Where SANS 10234 guidance is either not available, unclear, or relatively incomplete, cognisance has been taken of European Regulation (EC) No. 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) that adopts, within the European community, the GHS as published by the United Nations Social and Economic Council.
- Hazard Statement Codes for the substances have been sourced from either the supplement to SANS 10234:2008 Edition 1, Table 3.1 of Annex VI of the CLP Regulations, or the European Chemicals Agency, Classification & Labelling Inventory Database.
- 6. Cognisance must be taken of the need to reclassify the waste every five years, or if the generation process changes or, otherwise, if more data becomes available.

Safety Data Sheet

Required	No		

Appendices

Appendix	Title
Α	Laboratory Analytical Certificates
В	Type Profiling Assessment (GN R635/636)
С	Screening Material Classification (SANS 10234)

¹ Subject to any prohibitions



Waiver

The Waste Management Summary Report (Report) has been prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf and at the request of Seriti Coal (Pty) Ltd (Client), to provide the Client an understanding of the Relevant Documents.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report except where otherwise indicated.

Authorisation

Shameer Hareeparsad Principal Associate Shameer.Hareeparsad@wsp.com

Appendix A

LABORATORY ANALYTICAL CERTIFICATES

CONFIDENTIAL



Element Materials Technology Unit D2 & D5 9 Quantum Road Firgrove Business Park Somerset West 7130 South Africa

W: www.element.com

WSP Group Africa Building C, Knightsbridge 33 Sloane Street Bryanston Johannesburg Gauteng South Africa 2191

Attention :	Shameer Hareeparsad
Date :	3rd March, 2023
Your reference :	21465149
Our reference :	Test Report 23/107 Batch 1
Location :	Seriti New Largo
Date samples received :	21st February, 2023
Status :	Final report
Issue :	1

Ten samples were received for analysis on 21st February, 2023 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Analysis was undertaken at either Element Materials Technology UK, which is ISO 17025 accredited under UKAS (4225) or Element Materials Technology (SA) which is ISO 17025 accredited under SANAS (T0729) or a subcontract laboratory where specified.

NOTE: Under International Laboratory Accreditation Cooperation (ILAC), ISO 17025 (UKAS) accreditation is recognised as equivalent to SANAS (South Africa) accreditation.

Authorised By:

Jeanri Stevens Laboratory Supervisor

Inorganics Laboratory:

Aubrey Lindi Technical Signatory (Inorganics)

Please include all sections of this report if it is reproduced

Client Name:				
Reference:				
Location:				
Contact:				
EMT Job No:				

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023			
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt					21/02/2023			21/02/2023			LOD/LOR	Units	Method No.
Antimony*	1	2	<1	<1	<1	1	3	3	2	2	<1	mg/kg	UK_TM30/UK_PM15
Arsenic*	6.9	6.5	1.4	6.1	4.5	5.3	4.1	3.8	8.8	11.5	<0.5	mg/kg	UK_TM30/UK_PM15
Barium*	116	150	99	99	170	571	136	121	472	388	<1	mg/kg	UK_TM30/UK_PM15
Cadmium*	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	UK_TM30/UK_PM15
Chromium*	30.1	28.2	6.9	25.1	28.3	42.4	88.1	48.8	42.1	47.0	<0.5	mg/kg	UK_TM30/UK_PM15
Cobalt*	11.5	91.5	1.1	13.0	16.6	18.0	17.7	17.3	24.4	15.9	<0.5	mg/kg	UK_TM30/UK_PM15
Copper*	45	53	14	49	46	15	28	18	51	56	<1	mg/kg	UK_TM30/UK_PM15
Lead* Manganese*	22 730	36 1197	21 74	26 62	28 450	7 1662	18 496	17 576	31 818	29 387	<5 <1	mg/kg mg/kg	UK_TM30/UK_PM15 UK_TM30/UK_PM15
Mercury*	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	mg/kg	UK TM30/UK PM15
Molybdenum*	1.3	5.2	0.1	0.2	0.7	1.3	0.8	0.8	1.8	2.2	<0.1	mg/kg	UK_TM30/UK_PM15
Nickel*	22.7	144.0	5.1	15.2	27.3	19.9	29.4	29.8	43.0	41.0	<0.7	mg/kg	UK_TM30/UK_PM15
Selenium*	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	UK_TM30/UK_PM15
Vanadium*	49	65	11	26	91	20	68	56	72	64	<1	mg/kg	UK_TM30/UK_PM15
Boron (Aqua Regia Soluble)*	2.87	6.40	12.36	6.42	10.91	0.54	<0.25	<0.25	1.08	1.86	<0.25	mg/kg	UK_TM30/UK_PM15
Zinc*	131	159	<5	142	105	56	110	120	197	130	<5	mg/kg	UK_TM30/UK_PM15
Fluoride	0.7	1.5	0.7	0.5	1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	malka	SA_TM27/SA_PM20
Hexavalent Chromium*	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	<0.3	<0.3	<0.3	<0.3	mg/kg mg/kg	UK_TM38/UK_PM20
	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0		
Total Cyanide*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	UK_TM89/UK_PM45

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : ASLP (20:1) - Reagent Water

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and ad	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date			20/02/2023	20/02/2023		20/02/2023							
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt													
Dissolved Antimony*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Arsenic* Dissolved Barium*	<2.5 289	<2.5 257	<2.5 214	<2.5 229	<2.5 161	<2.5 272	<2.5 231	<2.5 274	<2.5 246	<2.5 272	<2.5 <3	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Boron*	289	237	15	229	24	50	69	63	88	72	<12	ug/l ug/l	UK_TM30/UK_PM14
Dissolved Cadmium*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	UK_TM30/UK_PM14
Dissolved Chromium*	<1.5	<1.5	<1.5	<1.5	<1.5	2.1	<1.5	<1.5	1.9	2.7	<1.5	ug/l	UK_TM30/UK_PM14
Dissolved Cobalt*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Copper*	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	UK_TM30/UK_PM14
Dissolved Lead*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	UK_TM30/UK_PM14
Dissolved Manganese*	<2	<2	<2	<2	<2	34	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Mercury*	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	ug/l	UK_TM30/UK_PM14
Dissolved Molybdenum*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Nickel*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Selenium* Dissolved Vanadium*	<3 1.7	<3 <1.5	<3 <1.5	<3 2.4	<3 <1.5	<3 <1.5	<3 <1.5	<3 3.2	<3 2.0	<3 3.9	<3 <1.5	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Zinc*	7	11	10	11	14	20	14	17	12	3.9 18	<1.5	ug/l ug/l	UK_TM30/UK_PM14
	,		10		14	20			12	10	-0	ugn	
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Chloride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	0.4	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Sulphate	2.9	1.9	1.2	3.1	0.8	2.7	2.9	2.4	2.7	2.5	<0.5	mg/l	SA_TM27/SA_PM0
Nitrate as N	0.07	<0.05	<0.05	0.11	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	mg/l	SA_TM27/SA_PM0
Total Cyanide*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	UK_TM89/UK_PM0
Hexavalent Chromium*	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	UK_TM38/UK_PM0
Total Dissolved Solids	<35	<35	<35	38	<35	65	36	102	136	84	<35	mg/l	SA_TM20/SA_PM80
pH	6.99	6.98	7.91	8.58	7.36	7.78	7.28	8.65	8.13	7.88	<2.00	pH units	SA_TM19/SA_PM0
			-			-	-						

Client Name:	WSP Group Africa				
Reference:	21465149				
Location:	Seriti New Largo				
Contact:	Shameer Hareeparsad				

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason						
	No deviating sample report results for job 23/107											

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/107

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation. Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range
EMT Job No: 23/107

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
SA_TM19	Determination of pH by bench pH meter	SA_PM0	No preparation is required.			AR	No
SA_TM20	Modified BS 1377-3: 1990 Gravimetric determination of Total Dissolved Solids	SA_PM80	A 20:1 ratio of leaching fluid to as received soil, is leached for 18 hours. The client can choose to use any of the following leaching fluids a) deionised water b) pH5 c) pH 5/pH2.9 depending on pH of sample d) pH9.2			AR	No
SA_TM27	Major ions by lon Chromatography	SA_PM0	No preparation is required.				
SA_TM27	Major ions by lon Chromatography	SA_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a orbital shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a orbital shaker.			AD	Yes
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				No
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.				Yes
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM0	No preparation is required.				No
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.				Yes
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM0	No preparation is required.				No
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.				Yes

Appendix B

TYPE PROFILING

CONFIDENTIAL

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11.



Waste Type Profiling and Disposal Prohibition Appraisal Based on National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN R635 of 2013) together with National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)

	Source of Waste: New Largo Coal (Pty) Ltd, N4 and N12 highways between Bronkhorstspruit and eMalahleni towns, Sample E - Sandstone Waste Matrix (Louid (Solid): Solid Appraisal Date: May 2023										
Waste Matrix (Liquid / Solid): Leachate Preparation (Solids Only):	Solid Non-Putrescil	ble (Mono-Dis	posal): Reagent	Water				Арр	oraisal Date:	May 2023	
Substance	С ТСТ0	oncentratio	n (ppm) - So TCT2	olid/Total Assessed	Waste Type (based on TCTs only; subject to		Concentra	tion (ppm LCT2) - Leacha LCT3	te/Liquid Assessed	Waste Type (based on LCTs only;
Metal Ions	1010	1011	1012	Concentration	LCTs)	LCIU	Len	LCIZ	Leis	Concentration	subject to TCTs)
Arsenic	5.8	500	2000	4.5	Type 4	0.01	0.5	1	4		
Boron Barium	150 62.5	15000 6250	60000 25000	10.91 170	Type 4 Type 3	0.5	25 35	50 70	200 280	0.024 0.161	Type 4 Type 4
Cadmium	7.5	260	1040	0.2	Type 4	0.003	0.15	0.3	1.2	0.101	Type 4
Cobalt	50	5000	20000	16.6	Type 4	0.5	25	50	200		
Chromium Chromium (Hexavalent)	46000 6.5	800000 500	- 2000	28.3	Type 4	0.1	5 2.5	10	40 20		
Copper	16	19500	78000	46	Type 3	2	100	200	800		
Mercury	0.93	160	640			0.006	0.3	0.6	2.4		
Manganese Molybdenum	1000 40	25000 1000	100000 4000	450 0.7	Type 4 Type 4	0.5	25 3.5	50 7	200 28		
Nickel	91	10600	42400	27.3	Type 4	0.07	3.5	7	28		
Lead Antimony	20 10	1900 75	7600 300	28	Type 3	0.01 0.02	0.5	1	4		
Selenium	10	50	200			0.01	0.5	1	4		
Vanadium Zinc	150 240	2680 160000	10720 640000	91 105	Type 4	0.2	10 250	20 500	80 2000	0.014	Type 4
Inorganic Anions	240	100000	040000	105	Type 4	5	250	500	2000	0.014	Type 4
Total Dissolved Solids	-	-	-	Not	t Applicable	1000	12500	25000	100000		
Chloride	-	-	-	Not	t Applicable	300	15000	30000	120000		
Sulphate	-	-	-		t Applicable	250	12500	25000	100000		
Nitrate Fluoride	- 100	- 10000	- 40000	Not	t Applicable Type 4	11	550 75	1100 150	4400 600		
Cyanide	14	10500	42000		Type 4	0.07	3.5	7	28		
Organics											
Benzene Benzo(a)pyrene	-	10	40 6.8			-	0.01 0.035	0.02	0.08		
Carbon tetrachloride	-	4	16			-	0.2	0.4	1.6		
Chlorobenzene Chloroform	-	8800 700	35200 2800			-	5	10	40 120		
Chloroform 2-Chlorophenol	-	2100	2800 8400				15 15	30 30	120		
Bis(2-ethylhexyl)phthalate	-	40	160			-	0.5	1	4		
1,2-Dichlorobenzene 1,4-Dichlorobenzene	-	31900 18400	127600 73600				5 15	10 30	40 120		
1,2-Dichloroethane	-	3.7	14.8				1.5	3	120		
1,1-Dichloroethene	-	150	600			-	0.35	0.7	2.8		
1,2-Dichloroethene Dichloromethane	-	3750 16	15000 64			-	2.5 0.25	0.5	20 2		
2,4-Dichlorophenol	-	800	3200			-	10	20	80		
2,4-Dinitrotoluene Ethylbenzene	-	5.2 540	20.8 2160			-	0.065	0.13	0.52 28		
Formaldehyde		2000	8000				25	50	200		
Hexachlorobutadiene	-	2.8	5.4			-	0.03	0.06	0.24		
Methyl Ethyl Ketone (2-Butanone) Methyl Tertiary Butyl Ether	-	8000 1435	32000 5740				100	200	800 20		
Nitrobenzene	-	45	180				1	2	8		
Total PAHs	-	50	200			-	-	-	-		pplicable
>C6-C9	-	650	2600			-	-	-	-		pplicable
>C10-C36 Phenol	-	10000 560	40000 2240				- 7	- 14	- 56	NOL A	pplicable
Polychlorinated Biphenyls (PCBs)	-	12	48			-	0.025	0.05	0.2		
Styrene 1,1,1,2-Tetrachloroethane	-	120 400	480 1600			-	1 5	2 10	8 40		
1,1,2,2-Tetrachloroethane	-	5	20				0.65	1.3	5.3		
Tetrachloroethene Toluene	-	200 1150	800 4600			-	0.25 35	0.5 70	2 280		
Trichlorobenzenes (Sum)	-	3300	13200			-	35	70	280		
1,1,1-Trichloroethane	-	1200	4800			-	15	30	120		
1,1,2-Trichloroethane Trichloroethene	-	48 11600	192 46400			-	0.06	2	4		
2,4,6-Trichlorophenol	-	1770	7080			-	10	20	80		
Vinyl chloride Xylenes (Sum)	-	1.5 890	6 3560			-	0.015	0.03	0.12 200		
Pesticides		870	5500		-		25	50	200		
Aldrin + Dieldrin	0.05	1.2	4.8			-	0.015	0.03	0.03		
DDT + DDD + DDE 2,4-Dichlorophenoxyacetic Acid (2,4-D)	0.05	50 120	200 480				1	2	2		
Chlordane	0.05	4	16			-	0.05	0.1	0.1		
Heptachlor Supplementary	0.05 Considerat	1.2	4.8 firmation of	Type 4 Waste Ty	ne		0.015	0.03	0.03	tes	
Suppementary			(mg/kg), un		Satisfy					st conservative type cal	
Organics		Threshold		Assessed	Type 4					otal (TCT) or Leachable for any given substance	
M	tak (all conce		CT0 & LCT0):	Concentration	No	of TCTs in	isolation can	not result in	a Type 4 pro	file), the final waste typ	
			CT0 & LCT0):	As above As above	Yes					ta simultaneously.	of substances (i.e. above
Total Organic Carbon	(%)		3		To Clarify	laboratory	limits of dete	ction) have t	hese been co	mpared to their respect	
BTEX (Sum)		6			To Clarify			o be at conce	entrations les	s than laboratory limits	of detection have been
Polychlorinated Biphenyls (PCBs)		1			To Clarify		tanding dispe			ng of liquid wastes is un	
Mineral Oil (>C10-C40) Pesticides		500			To Clarify	the analytic	al results ob	tained direct	ly from the li	quid media to the LCT	
Pesticides Aldrin + Dieldrin		0.05			To Clarify	uquu wash	es cannot pro	viue a ieach	uie exirăCI fă	" anaiysis.	
DDT + DDD + DDE		0.05			To Clarify						
2,4-Dichlorophenoxyacetic Acid (2,4-D)		0.05			To Clarify						
Chlordane		0.05			To Clarify						
Heptachlor Overall Screened Waste Type (<i>notwithstand</i>	ing notential	0.05 isposal prohib	itions see belo	ne)	To Clarify	Category	f Landfill (G	N R636 of 2	2013)		
Type 3 Waste						Class	C/G	LB+			
Physicochemical Disposal Prohibition	IS (notwithstand	ling other poten	tial restrictions a	ssociated with Waste Typ	e)						
PCBs > 50ppm		PCBs (ppm)			Not assessed or less than labo	oratory limit o	of detection				
Explosive, corrosive or oxidising according t	o SANS 10234			No	Not applicable Not assessed						
pH <6 or >12 Flashpoint <61° Celsius	F	pH ashpoint (°C)			Not assessed Not assessed						
Moisture Content > 40%		Content (%)			Not assessed or 0%						
Hazardous with Calorific Value >10MJ/kg		CV (MJ/kg)		No	Not applicable						
Hazardous with Total Organic Carbon >6% Brine (high salt content) >5% TDS		TOC (%) TDS (%)		No N/A	Not applicable Not applicable to a solid was	te					
Leachable TDS >100 000mg/l		TDS (mg/l)	. 0	No	Not applicable						
				d of Wasta Type Profi	iling and Disposal Prohibitio	n Annraical					

Appendix C

CLASSIFICATION

CONFIDENTIAL

)

11.



WSP Reference: 41105637	Prepared For: Seriti Coal (Pty) Ltd
Generator: New Largo Coal (Pty) Ltd	Assessment Date: May 2023
Source Address: N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	
Production Process: Sample E - Sandstone	

General Appearance	Classification Summary
Soil	Not Hazardous (General)

Potential Hazard Statement Codes of Relevance

Composition & Quantitative Classification

Composition assessed in general accordance with the following hierarchy:

1. South African National Standard, Globally Harmonised System of Classification and Labelling of Chemicals (GHS), SANS 10234:2019, Edition 2

2. European Regulation (EC) No. 1272/2008, 'Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation)

Hazard Statement Codes for individual compounds are sourced from:

1. Supplement to SANS 10234:2008 Edition 1

2. Table 3.1 of Annex VI of the CLP Regulations

3. European Chemicals Agency, Classification & Labelling Inventory Database

4. Product (Material) Safety Data Sheet

Where relevant, recorded concentrations have been converted from dry weight values to account for the recorded moisture content of material.

Quantitative screening assessment of individual Hazard Statement Codes presented on the following pages.

Hazard Statement	Hazard Statement	Generic Cut- Off Value	Off Value	Generic Cut-Off Value and Test Comments	Assessment Concentration	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
Code		(%)	(ppm)	PHYSICAL HAZARD	(ppm) STATEMENTS			
				If >0% then classified under H200 unless further	No substances			
H200	Unstable explosive	0	0	information and/or testing proves otherwise	identified	Not applicable	No	
H201	Explosive; mass explosion hazard	0	0	If >0% then classified under H201 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H202	Explosive; severe projection hazard	0	0	If >0% then classified under H202 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H203	Explosive; fire, blast or projection hazard	0	0	If >0% then classified under H203 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H204	Fire or projection hazard	0	0	If >0% then classified under H204 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H205	May mass explode in fire	0	0	If >0% then classified under H205 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H220	Extremely flammable gas	0	0	If >0% then classified under H220 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H221	Flammable gas	0	0	If >0% then classified under H221 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H222	Extremely flammable aerosol	0	0	If >0% then classified under H222 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H223	Flammable aerosol	0	0	If >0% then classified under H223 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H224	Extremely flammable liquid and vapour	0	0	If >0% then classified under H224 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H225	Highly flammable liquid and vapour	0	0	If >0% then classified under H225 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H226	Flammable liquid and vapour	0	0	If >0% then classified under H226 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H227	Combustible liquid	0	0	If >0% then classified under H227 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H228	Flammable solid	0	0	If >0% then classified under H228 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H229	Pressurised container: may burst if heated	0	0	Relevant only for pressurised containers	Not applicable	Not applicable	No	
H230	May react explosively even in the absence of air	0	0	If >0% then classified under H230 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H231	May react explosively even in the absence of air at elevated pressure and/or temperature	0	0	If >0% then classified under H231 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H240	Heating may cause an explosion	0	0	If >0% then classified under H240 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H241	Heating may cause a fire or explosion	0	0	If >0% then classified under H241 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H242	Heating may cause a fire	0	0	If >0% then classified under H242 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)
H250	Catches fire spontaneously if exposed to air	0	0	If >0% then classified under H250 unless further information and/or testing proves otherwise	52.50	Potential to catch fire spontaneously if exposed to air: detailed assessment required	Not likely at recorded concentration
H251	Self-heating; may catch fire	0	0	If >0% then classified under H251 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
H252	Self-heating in large quantities; may catch fire	0	0	If >0% then classified under H252 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
	60 In contact with water releases flammable gases that may ignite spontaneously	0	0	If >0% then classified under H260 unless further information and/or testing proves otherwise	26.25	Assessment, see below	Substance- specific assessments: see below
		0.0076	76.1	<u>Element-specific assessment</u> Concentration of aluminium phosphide required to evolve sufficient volume of phosphine in contact with water to potentially render hazardous; based on stoichiometry	No analysis for aluminium	Not applicable	No
1260		0.108	1076	<i>Element-specific assessment</i> Concentration of free magnesium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for magnesium	Not applicable	No
		0.346	3463	<u>Element-specific assessment</u> Concentration of free potassium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for potassium	Not applicable	No
		0.204	2036	<u>Element-specific assessment</u> Concentration of free sodium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for sodium	Not applicable	No
		0	0	If >0% then classified under H261 unless further information and/or testing proves otherwise	85.00	Assessment, see below	Substance- specific assessments: see below
261	In contact with water	0.608	6082	<u>Element-specific assessment</u> Concentration of free barium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	170.00	Unlikely to generate hazardous volume of hydrogen	No
1261	releases flammable gas	0.177	1775	<u>Element-specific assessment</u> Concentration of free calcium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for calcium	Not applicable	No

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
		0	0	<u>Compound-specific assessment</u> Ferrosilicon may evolve sufficient hydrogen in contact with water to render hazardous; based on ratio of iron:silicon	Ferrosilicon not identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H270	May cause or intensify fire; oxidiser	0	0	If >0% then classified under H270 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H271	May cause fire or explosion; strong oxidiser	0	0	If >0% then classified under H271 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H272	May intensify fire; oxidiser	0	0	If >0% then classified under H272 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H280	Contains gas under pressure; may explode if heated	0	0	If >0% then classified under H280 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H281	Contains refrigerated gas; may cause cryogenic burns or injury	0	0	If >0% then classified under H281 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H290	May be corrosive to metals	0	0	If contributing substance >0% then conservatively classified under H290 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
				HEALTH HAZARD S	STATEMENTS			
H300	Fatal if swallowed	1	10000	If cumulative/additive concentrations of contributing substances >1% then conservatively classified under H300 (Category 1 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H301	Toxic if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H301 (Category 3 Acute Toxicity: Oral); pending further assessment	4.50	Further assessment not necessary	No	
H302	Harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H302 (Category 4 Acute Toxicity: Oral); pending further assessment	10.91	Further assessment not necessary	No	
H303	May be harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H303 (Category 5 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H304	May be fatal if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% then conservatively classified under H304 (Aspiration Hazard, Category 1); pending further assessment	No substances identified	Not applicable	No	
H305	May be harmful if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% classified under H305 (Aspiration Hazard, Category 2); pending further assessment	No substances identified	Not applicable	No	
H310	Fatal in contact with skin	1	10000	If cumulative/additive >1% classified under H310 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H311	Toxic in contact with skin	1	10000	If individual substance >1% classified under H311 (Category 3 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H312	Harmful in contact with skin	1	10000	If individual substance >1% classified under H312 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н313	May be harmful in contact with skin	1	10000	If individual substance >1% classified under H313 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H314	Causes severe skin burns and eye damage	1	10000	If cumulative/additive >1% classified under H314 (Category 1 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
	bu ns and cyc damage	≤2 pH Uı	nits ≥ 11.5	<u>pH-specific assessment</u> If ≤ 2 or ≥ 11.5 pH then classified as corrosive	pH not determined	Not applicable	Unclarified	
H315	Causes skin irritation	1	10000	If cumulative/additive >1% classified under H315 (Category 3 Skin Corrosion/Irritant), >10% then Category 2; pending further assessment	170.00	Further assessment not necessary	No	
H316	Causes mild skin irritation	10	100000	If cumulative/additive >10% classified under H316 (Category 3 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
H317	May cause an allergic skin reaction	0.1	1000	If individual substance ≥0.1% classified under H317 (Category 1 Skin Sensitisation); pending further assessment	27.30	Further assessment not necessary	No	
H318	Causes serious eye damage	1	10000	If cumulative/additive >1% classified under H318 (Category 2 Skin/Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H319	Causes serious eye irritation	10	100000	If cumulative/additive >10% classified under H319 (Category 2 Eye Sensitisation); pending further assessment	170.00	Further assessment not necessary	No	
H320	Causes eye irritation	10	100000	If cumulative/additive >10% classified under H320 (Category 2 Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H330	Fatal if inhaled	1	10000	If cumulative/additive >1% classified under H330 (Category 1 Acute Toxicity); pending further assessment	0.200	Further assessment not necessary	No	
H331	Toxic if inhaled	1	10000	If individual substance >1% classified under H331 (Category 3 Acute Toxicity); pending further assessment	4.50	Further assessment not necessary	No	
H332	Harmful if inhaled	1	10000	If individual substance >1% classified under H332 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н333	May be harmful if inhaled	1	10000	If individual substance >1% classified under H333 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	0.1	1000	If individual substance >0.1% classified under H334 (Category 1 Respiratory Sensitisation); pending further assessment	16.60	Further assessment not necessary	No	
Н335	May cause respiratory irritation	20	200000	If cumulative/additive >20% classified under H335 under Generic Limits; pending further assessment	170.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H336	May cause drowsiness or dizziness	20	200000	If cumulative/additive >20% classified under H336 under Generic Limits; pending further assessment	No substances identified	Not applicable	No	
H340	May cause genetic defects	0.1	1000	If individual substance >0.1% classified under H340 (Category 1 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H341	Suspected of causing genetic defects	1	10000	If individual substance >1% classified under H341 (Category 2 Mutagen); pending further assessment	0.20	Further assessment not necessary	No	
H350	May cause cancer	0.1	1000	If individual substance >0.1% classified under H350 (Category 1 Carcinogen); pending further assessment	0.20	Further assessment not necessary	No	
H351	Suspected of causing cancer	0.1	1000	If individual substance >0.1% classified under H351 (Category 2 Carcinogen); pending further assessment	27.30	Further assessment not necessary	No	
H360	May damage fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H360 (Category 1 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361	Suspected of damaging fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H361 (Category 2 Teratogen); pending further assessment	0.20	Further assessment not necessary	No	
H361d	Suspected of damaging the unborn child	0.1	1000	If individual substance >0.1% classified under H361d; pending further assessment	No substances identified	Not applicable	No	
H362	May cause harm to breast-fed children	0.1	1000	If individual substance >0.1% classified under H362 (Additional Category Teratogen); pending further assessment	No substances identified	Not applicable	No	
H370	Causes damage to organs	1	10000	If individual substance >1% classified under H370 (Category 1 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H371	May cause damage to organs	1	10000	If individual substance >1% classified under H371 (Category 2 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
Н372	Causes damage to organs through prolonged or repeated exposure	1	10000	If individual substance >1% classified under H372 (Category 1 Repeat Exposure); pending further assessment	27.30	Further assessment not necessary	No	
11272	May cause damage to organs through	1	10000	If individual substance >1% classified under H373 (Category 2 Repeat Exposure); pending further assessment	No substances identified	Not applicable	No	
H373	prolonged or repeated exposure	0.005	50	<u>PCB-specific assessment</u> If PCBs are present >0.005% then classified hazardous under H373	No analysis for PCBs	Not applicable	Unclarified: not anticipated	
				ENVIRONMENTAL HAZA	ARD STATEMEN	ГS		
H400	Very toxic to aquatic life	1	10000	If cumulative/additive >1% classified under H400 (Category 1 Acute Aquatic Toxicity); pending further assessment	109.70	Further assessment not necessary	No	
H401	Toxic to aquatic life	25	250000	If modified cumulative/additive >25% classified under H401 (Category 2 Acute Aquatic Toxicity); pending further assessment	1097.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H402	Harmful to aquatic life	25	250000	If modified cumulative/additive >25% classified under H402 (Category 3 Acute Aquatic Toxicity); pending further assessment	10970.00	Further assessment not necessary	No	
H410	Very toxic to aquatic life with long lasting effects	1	10000	If cumulative/additive >1% classified under H410 (Category 1 Chronic Aquatic Toxicity); pending further assessment	109.70	Further assessment not necessary	No	
H411	Toxic to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H411 (Category 2 Chronic Aquatic Toxicity); pending further assessment	1097.00	Further assessment not necessary	No	
H412	Harmful to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H412 (Category 3 Chronic Aquatic Toxicity); pending further assessment	10997.30	Further assessment not necessary	No	
H413	May cause long lasting harmful effects to aquatic life	25	250000	If modified cumulative/additive >25% classified under H413 (Category 4 Chronic Aquatic Toxicity); pending further assessment	153.60	Further assessment not necessary	No	
H420	Harms public health and the environment by destroying ozone in the upper atmosphere	0.1	1000	If individual substance >0.1% classified under H420 (Category 1). Substances based on Annexes to the Montreal Protocol.	No substances identified	Not applicable	No	
Assumptions	and Comments							

1. Acute Toxicity Estimates (ATE) have not been derived from LD50 data or conversion factors presented in SANS 10234; screening classification has been based on generic cut-off values. Where more detailed assessment is recommended, appropriate LD50 should be sourced based on current available data.

2. Ecotoxicity for Category 1 Acute and Chronic Hazards have assumed 1% threshold and additive compounds rather than utilisation of Weighting Factor/s presented in SANS 10234. Where more detailed assessment is recommended, this should follow the mixture-specific principles defined in SANS 10234.

3. Classification does not include European Union (EU), or other territory-specific, Hazard Statement Codes that may be applicable outside of the Republic of South Africa.

4. Only where data is presented, or where laboratory analysis has resulted in positive identification of substances (i.e. above laboratory limits of detection), have the applicable Hazard Statement Codes been appraised (i.e. substances determined to be at concentrations less than laboratory limits of detection have been assumed to be absent).

5. Unless exact speciation has been established through detailed analysis, classification has been based on reasonable assumptions of substances most-likely present based on expected behaviour within the material. It is recognised that this may not be applicable in all instances and, for clarity, a list of the individual substances appraised where assumptions have been made are listed below.

6. Where laboratory analysis has reported concentrations on a dry weight basis these have been converted to take account of sample moisture content using the formula:

Wet Weight Concentration = Dry Weight Concentration x ((100 - % moisture content)/100).

7. Where assessment has been undertaken on liquids, it has been assumed that 1-litre (volume) is equivalent to 1-kg (mass).

8. For additional details in respect of the individual substances that may render any given material type as hazardous, reference should be made to the appropriate Safety Data Sheet (SDS) which takes account of this classification or, if an SDS has not been prepared, the appropriate report relevant for this classification.

9. To the best of our knowledge, the information contained herein is accurate; however, WSP assumes no liability whatsoever for its accuracy or completeness. The classification of any material, and its appropriate management, remains the responsibility of the generator. All materials may present unknown hazards. Although certain hazards are described herein, it cannot be guaranteed that these are the only hazards that exist, or that these have been recognised in full.

List of Assumed Substances, where necessary

Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Vanadium, Zinc,



WASTE MANAGEMENT SUMMARY REPORT

WASTE IDENTIFICATION	Sample 1 – Sandstone 1
SOURCE	New Largo Coal (Pty) Ltd
DATE OF ASSESSMENT	March 2024

Relevant Regulations and Standards

- ✓ National Environmental Management: Waste Act (NEM: WA, 2008)
- ✓ National Environmental Management: Waste Amendment Act (NEM: WAA, 2014)
- ✓ National Environmental Management Laws Amendment Act (NEMLAA, 2022)
- ✓ Waste Classification and Management Regulations (GN R634 of 2013)
- ✓ Regulations for Hazardous Chemical Agents (GG 44366, 2021)
- ✓ National Norms and Standards for the Assessment of Waste to Landfill Disposal (GN R635 of 2013)
- ✓ National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)
- ✓ South African National Standard (SANS) 10234:2019, Globally Harmonised System of Classification and Labelling of Chemicals (GHS) (SANS 10234)
- South African National Standard (SANS) 11014:2010, Safety Data Sheet for Chemical Products Content and Order of Sections (SANS 11014)

Scope

Included	Element	Description
✓	Defined and Listed Waste Appraisal	Desktop appraisal of whether the waste is defined under Schedule 3 of the NEM: WAA and/or listed in Annexure 1 of GN R634. Wastes either defined or listed do not necessarily require classification in terms of SANS 10234.
\checkmark	Appraisal of Disposal Prohibitions	Determination of possible disposal prohibitions in terms of GN R636.
\checkmark	Waste Type Profiling for Landfill Disposal	Profiling in accordance with GN R635 and/or Waste Acceptance Criteria as detailed in GN R636.
\checkmark	Classification	Quantitative classification in broad accordance with SANS 10234.
×	Safety Data Sheet	A Safety Data Sheet (SDS) is required for all hazardous waste (excluding Health Care Risk Waste) in terms of GN R634.

Waste Description

Process Origin	Chemical Inputs	Physical Characteristics
N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	None known	Solid

Defined Waste Appraisal

Listed in Schedule 3 of NEM: WAA	Yes
Descriptor	Category A: Wastes resulting from exploration, mining quarrying, and physical and chemical treatment of minerals (a) wastes from mineral excavation.
1. The above descriptor also takes ad	count of the proceeding classification



Listed Waste Appraisal

Listed in Annexure 1 of GN R634	No
Descriptor	Not applicable
2. Not categorically listed in GN R634	•

Sampling and Laboratory Analysis

Sampler	Date	Comments		
WSP	February 2023	Representative samples were collected by W analysis.	/SP and subr	nitted for
Analytical Suit	te		Μ	atrix
			Total	Leachate
Metals and me	etalloids, as listed in G	N R635		
Antimony, arse	nic, barium, boron, cadn	nium, chromium (total and hexavalent), cobalt,	\checkmark	\checkmark
copper, lead, m	nanganese, mercury, mo	lybdenum, nickel, selenium, vanadium, and	\checkmark	v
zinc				
Inorganics, as	listed in GN R635			
Chloride, nitrate	e, sulphate, and Total Di	ssolved Solids	N/A	\checkmark
Cyanide and flu	uoride		\checkmark	\checkmark
Organics, as l	isted in GN R635			
Benzene, tolue	ne, ethylbenzene, and x	ylenes (BTEX)	×	×
Petroleum hydr	ocarbons		×	N/A
Polychlorinated	l Biphenyls (PCB)		×	×
Polycyclic Aromatic Hydrocarbons (PAH)			×	N/A
Volatile and Semi-Volatile Organic Compounds (VOC and SVOC)		×	×	
	listed in GN R635			
Aldrin + Dieldrin		×	×	
DDT + DDD + I	DDE		×	×
2,4-D			×	×
Chlordane			×	×
Heptachlor	-		×	×
	neters, to support class	sification and disposal restriction appraisal.		
Calorific Value			×	×
Flashpoint			×	×
Mineral Oil			×	× ×
Moisture Conte	ent		×	× N/A
pH			×	IN/A ×
Total Organic C	. ,		~	~
••	y Parameters reasonal	•	**	
Aluminium, cale	cium, iron, magnesium, p	potassium, sodium, and phosphorous	×	×

Notes to Laboratory Analysis

1. N/A – Not applicable

2. As per GN R635, leachate was prepared using reagent water applicable to a mono-disposal scenario.

3. Whilst not all the substances above are likely to be present, the suite represents those determinants listed within the variously applicable Norms and Standards alongside other parameters that are expected.

4. It should be noted that pesticides have been omitted from the analytical suite as it is unreasonable to suspect their presence within the stream.

5. Laboratory certificate of analysis provided within **Appendix A** including details of any analysis unable to be completed based on the sample matrix.



Appraisal of Disposal Prohibitions

Restrictive Condition	Description
None identified	N/A

Waste Type Profiling for Landfill Disposal¹

Waste Type	Landfill Class
Туре 3	Class C

1. Refer to Appendix B for indicative profiling assessment.

 Type Profiling is based on consideration of total and leachate concentrations of substances published in Paragraph 6 of GN R635 and the appropriate landfill class is determined with reference to the Waste Acceptance Criteria in Paragraph 4 of GN R636.

3. While reference is made in GN R634 to the application of SANS 10234 classification to Waste Type Profiling, the then Department of Environmental Affairs (DEA) confirmed during stakeholder engagement that Hazard Statement Codes for transportation and handling are not intended to be utilised for Waste Type Profiling for landfill disposal.

SANS 10234 Classification

Hazardous	Non-Hazardous ✓

- 1. Refer to **Appendix C** for the quantitative screening classification.
- Assumptions in terms of the chemical form (speciation) in which elemental components of the waste stream are likely to occur have generally been conservative considering plausible thermodynamic and mineralogical assemblages.
- 3. Where applicable to the sample medium, results of laboratory analysis have been corrected according to sample-specific moisture content.
- 4. Where SANS 10234 guidance is either not available, unclear, or relatively incomplete, cognisance has been taken of European Regulation (EC) No. 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) that adopts, within the European community, the GHS as published by the United Nations Social and Economic Council.
- Hazard Statement Codes for the substances have been sourced from either the supplement to SANS 10234:2008 Edition 1, Table 3.1 of Annex VI of the CLP Regulations, or the European Chemicals Agency, Classification & Labelling Inventory Database.
- 6. Cognisance must be taken of the need to reclassify the waste every five years, or if the generation process changes or, otherwise, if more data becomes available.

Safety Data Sheet

Required	No		

Appendices

Appendix	Title
Α	Laboratory Analytical Certificates
В	Type Profiling Assessment (GN R635/636)
С	Screening Material Classification (SANS 10234)

¹ Subject to any prohibitions



Waiver

The Waste Management Summary Report (Report) has been prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf and at the request of Seriti Coal (Pty) Ltd (Client), to provide the Client an understanding of the Relevant Documents.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report except where otherwise indicated.

Authorisation

Shameer Hareeparsad Principal Associate Shameer.Hareeparsad@wsp.com

Appendix A

LABORATORY ANALYTICAL CERTIFICATES

CONFIDENTIAL



Element Materials Technology Unit D2 & D5 9 Quantum Road Firgrove Business Park Somerset West 7130 South Africa

W: www.element.com

WSP Group Africa Building C, Knightsbridge 33 Sloane Street Bryanston Johannesburg Gauteng South Africa 2191

Attention :	Shameer Hareeparsad
Date :	3rd March, 2023
Your reference :	21465149
Our reference :	Test Report 23/107 Batch 1
Location :	Seriti New Largo
Date samples received :	21st February, 2023
Status :	Final report
Issue :	1

Ten samples were received for analysis on 21st February, 2023 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Analysis was undertaken at either Element Materials Technology UK, which is ISO 17025 accredited under UKAS (4225) or Element Materials Technology (SA) which is ISO 17025 accredited under SANAS (T0729) or a subcontract laboratory where specified.

NOTE: Under International Laboratory Accreditation Cooperation (ILAC), ISO 17025 (UKAS) accreditation is recognised as equivalent to SANAS (South Africa) accreditation.

Authorised By:

Jeanri Stevens Laboratory Supervisor

Inorganics Laboratory:

Aubrey Lindi Technical Signatory (Inorganics)

Please include all sections of this report if it is reproduced

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023			
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt					21/02/2023			21/02/2023			LOD/LOR	Units	Method No.
Antimony*	1	2	<1	<1	<1	1	3	3	2	2	<1	mg/kg	UK_TM30/UK_PM15
Arsenic*	6.9	6.5	1.4	6.1	4.5	5.3	4.1	3.8	8.8	11.5	<0.5	mg/kg	UK_TM30/UK_PM15
Barium*	116	150	99	99	170	571	136	121	472	388	<1	mg/kg	UK_TM30/UK_PM15
Cadmium*	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	UK_TM30/UK_PM15
Chromium*	30.1	28.2	6.9	25.1	28.3	42.4	88.1	48.8	42.1	47.0	<0.5	mg/kg	UK_TM30/UK_PM15
Cobalt*	11.5	91.5	1.1	13.0	16.6	18.0	17.7	17.3	24.4	15.9	<0.5	mg/kg	UK_TM30/UK_PM15
Copper*	45	53	14	49	46	15	28	18	51	56	<1	mg/kg	UK_TM30/UK_PM15
Lead* Manganese*	22 730	36 1197	21 74	26 62	28 450	7 1662	18 496	17 576	31 818	29 387	<5 <1	mg/kg mg/kg	UK_TM30/UK_PM15 UK_TM30/UK_PM15
Mercury*	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	mg/kg	UK TM30/UK PM15
Molybdenum*	1.3	5.2	0.1	0.2	0.7	1.3	0.8	0.8	1.8	2.2	<0.1	mg/kg	UK_TM30/UK_PM15
Nickel*	22.7	144.0	5.1	15.2	27.3	19.9	29.4	29.8	43.0	41.0	<0.7	mg/kg	UK_TM30/UK_PM15
Selenium*	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	UK_TM30/UK_PM15
Vanadium*	49	65	11	26	91	20	68	56	72	64	<1	mg/kg	UK_TM30/UK_PM15
Boron (Aqua Regia Soluble)*	2.87	6.40	12.36	6.42	10.91	0.54	<0.25	<0.25	1.08	1.86	<0.25	mg/kg	UK_TM30/UK_PM15
Zinc*	131	159	<5	142	105	56	110	120	197	130	<5	mg/kg	UK_TM30/UK_PM15
Fluoride	0.7	1.5	0.7	0.5	1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	malka	SA_TM27/SA_PM20
Hexavalent Chromium*	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	<0.3	<0.3	<0.3	< 0.3	mg/kg mg/kg	UK_TM38/UK_PM20
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0		
Total Cyanide*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	UK_TM89/UK_PM45

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : ASLP (20:1) - Reagent Water

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and ad	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date			20/02/2023	20/02/2023		20/02/2023							
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt													
Dissolved Antimony*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Arsenic* Dissolved Barium*	<2.5 289	<2.5 257	<2.5 214	<2.5 229	<2.5 161	<2.5 272	<2.5 231	<2.5 274	<2.5 246	<2.5 272	<2.5 <3	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Boron*	289	237	15	229	24	50	69	63	88	72	<12	ug/l ug/l	UK_TM30/UK_PM14
Dissolved Cadmium*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	UK_TM30/UK_PM14
Dissolved Chromium*	<1.5	<1.5	<1.5	<1.5	<1.5	2.1	<1.5	<1.5	1.9	2.7	<1.5	ug/l	UK_TM30/UK_PM14
Dissolved Cobalt*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Copper*	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	UK_TM30/UK_PM14
Dissolved Lead*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	UK_TM30/UK_PM14
Dissolved Manganese*	<2	<2	<2	<2	<2	34	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Mercury*	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	ug/l	UK_TM30/UK_PM14
Dissolved Molybdenum*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Nickel*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Selenium* Dissolved Vanadium*	<3 1.7	<3 <1.5	<3 <1.5	<3 2.4	<3 <1.5	<3 <1.5	<3 <1.5	<3 3.2	<3 2.0	<3 3.9	<3 <1.5	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Zinc*	7	11	10	11	14	20	14	17	12	3.9 18	<1.5	ug/l ug/l	UK_TM30/UK_PM14
	,		10		14	20			12	10	-0	ugn	
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Chloride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	0.4	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Sulphate	2.9	1.9	1.2	3.1	0.8	2.7	2.9	2.4	2.7	2.5	<0.5	mg/l	SA_TM27/SA_PM0
Nitrate as N	0.07	<0.05	<0.05	0.11	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	mg/l	SA_TM27/SA_PM0
Total Cyanide*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	UK_TM89/UK_PM0
Hexavalent Chromium*	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	UK_TM38/UK_PM0
Total Dissolved Solids	<35	<35	<35	38	<35	65	36	102	136	84	<35	mg/l	SA_TM20/SA_PM80
pH	6.99	6.98	7.91	8.58	7.36	7.78	7.28	8.65	8.13	7.88	<2.00	pH units	SA_TM19/SA_PM0
			-			-	-						

Client Name:	WSP Group Africa
Reference:	21465149
Location:	Seriti New Largo
Contact:	Shameer Hareeparsad

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
					No deviating sample report results for job 23/107	

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/107

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation. Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/107

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
SA_TM19	Determination of pH by bench pH meter	SA_PM0	No preparation is required.			AR	No
SA_TM20	Modified BS 1377-3: 1990 Gravimetric determination of Total Dissolved Solids	SA_PM80	A 20:1 ratio of leaching fluid to as received soil, is leached for 18 hours. The client can choose to use any of the following leaching fluids a) deionised water b) pH5 c) pH 5/pH2.9 depending on pH of sample d) pH9.2			AR	No
SA_TM27	Major ions by lon Chromatography	SA_PM0	No preparation is required.				
SA_TM27	Major ions by lon Chromatography	SA_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a orbital shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a orbital shaker.			AD	Yes
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				No
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.				Yes
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM0	No preparation is required.				No
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.				Yes
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM0	No preparation is required.				No
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.				Yes

Appendix B

TYPE PROFILING

CONFIDENTIAL

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11.



Waste Type Profiling and Disposal Prohibition Appraisal Based on National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN R635 of 2013) together with National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)

of Waster New Largo Coal (Ptv) Ltd. N4 and N12 highways between Bronkhorstspruit and eMalahleni towns, Sample 1 - Sandstone 1

Source of Was		Coal (Pty) Ltd, 1	N4 and N12 hig	ghways between Bronkh	norstspruit and eMalahleni tow	ns, Sample 1	- Sandstone 1				
Waste Matrix (Liquid / Soli Leachate Preparation (Solids Onl		ble (Mono-Disp	osal): Reagent	Water				App	raisal Date:	May 2023	
		Concentratio		olid/Total	Waste Type		Concentra	tion (ppm) - Leacha		Waste Type
Substance	ТСТ0	TCT1	TCT2	Assessed Concentration	(based on TCTs only; subject to LCTs)	LCT0	LCT1	LCT2	LCT3	Assessed Concentration	(based on LCTs only, subject to TCTs)
Metal Ions											
Arsenic Boron	5.8 150	500 15000	2000 60000	5.3 0.54	Type 4 Type 4	0.01	0.5	1 50	4 200	0.05	Type 4
arium	62.5	6250	25000	571	Type 3	0.7	35	70	280	0.272	Type 4
Cadmium Cobalt	7.5	260 5000	1040 20000	18	Type 4	0.003	0.15	0.3	1.2 200		
Chromium	46000	800000	-	42.4	Type 4	0.1	5	10	40	0.0021	Type 4
Chromium (Hexavalent) Copper	6.5 16	500 19500	2000 78000	15	Type 4	0.05	2.5 100	5 200	20 800		
Aercury	0.93	160	640	15	Type 4	0.006	0.3	0.6	2.4		
fanganese folghebengen	1000 40	25000 1000	100000 4000	1662	Type 3 Type 4	0.5	25	50 7	200	0.034	Type 4
1olybdenum lickel	91	10600	4000	1.3 19.9	Type 4 Type 4	0.07	3.5 3.5	7	28 28		
ead	20	1900	7600	7	Type 4	0.01	0.5	1	4		
ntimony elenium	10	75 50	300 200	1	Type 4	0.02 0.01	1 0.5	1	8		
anadium	150	2680	10720	20	Type 4	0.2	10	20	80		
inc norganic Anions	240	160000	640000	56	Type 4	5	250	500	2000	0.014	Type 4
otal Dissolved Solids	-	-	-	No	t Applicable	1000	12500	25000	100000	65	Type 4
hloride	-	-	-		t Applicable	300	15000	30000	120000		
ulphate		-	-		t Applicable	250	12500	25000	100000		
litrate luoride	- 100	- 10000	- 40000	No	t Applicable	11	550 75	1100 150	4400 600	0.3101	Type 4
yanide	14	10500	42000			0.07	3.5	7	28		
Organics		10	40				0.01	0.02	0.02		
enzene enzo(a)pyrene		10 1.7	40 6.8			-	0.01 0.035	0.02 0.07	0.08 0.28		
arbon tetrachloride	-	4	16			-	0.2	0.4	1.6		
'hlorobenzene 'hloroform		8800 700	35200 2800			-	5 15	10 30	40 120		
-Chlorophenol		2100	8400			-	15	30	120		
is(2-ethylhexyl)phthalate ,2-Dichlorobenzene		40 31900	160 127600			-	0.5	1 10	4 40		
4-Dichlorobenzene	-	18400	73600			-	15	30	120		
,2-Dichloroethane ,1-Dichloroethene	-	3.7 150	14.8 600				1.5 0.35	3 0.7	12 2.8		
,2-Dichloroethene	-	3750	15000			-	2.5	5	20		
ichloromethane A Dicklosen konsel	-	16	64			-	0.25	0.5	2 80		
,4-Dichlorophenol ,4-Dinitrotoluene	-	800 5.2	3200 20.8			-	10 0.065	20 0.13	0.52		
thylbenzene	-	540	2160				3.5	7	28		
ormaldehyde lexachlorobutadiene	-	2000 2.8	8000 5.4			-	25 0.03	50 0.06	200 0.24		
fethyl Ethyl Ketone (2-Butanone)	-	8000	32000				100	200	800		
Aethyl Tertiary Butyl Ether ätrobenzene	-	1435 45	5740 180			-	2.5	5	20		
Cotal PAHs		50	200			-	-	-	-	Not A	pplicable
·C6-C9	-	650	2600			-	-	-	-		pplicable
·C10-C36 Phenol		10000 560	40000 2240				- 7	- 14	- 56	Not A	pplicable
olychlorinated Biphenyls (PCBs)		12	48				0.025	0.05	0.2		
tyrene ,1,1,2-Tetrachloroethane	-	120 400	480 1600			-	1	2 10	8 40		
,1,2,2-Tetrachloroethane	-	400	20			-	0.65	1.3	5.3		
'etrachloroethene	-	200	800			-	0.25	0.5	2		
Yoluene Yrichlorobenzenes (Sum)	-	1150 3300	4600 13200			-	35 3.5	70 7	280 28		
,1,1-Trichloroethane	-	1200	4800			-	15	30	120		
,1,2-Trichloroethane irichloroethene	-	48 11600	192 46400			-	0.06	2	4		
,4,6-Trichlorophenol	-	1770	7080			-	10	20	80		
/inyl chloride Kylenes (Sum)	-	1.5 890	6 3560			-	0.015 25	0.03	0.12 200		
Pesticides				-		-					
ldrin + Dieldrin DT + DDD + DDE	0.05	1.2 50	4.8 200			-	0.015	0.03	0.03		
,4-Dichlorophenoxyacetic Acid (2,4-D)	0.05	120	480			-	1.5	3	3		
Chlordane	0.05	4	16			-	0.05	0.1	0.1 0.03		
leptachlor Supplementa	0.05 ry Considerat	1.2 tion for Con	4.8 firmation of	Type 4 Waste Ty	pe	-	0.015	0.03	0.03 No	tes	
		oncentration		less stated	Satisfy					st conservative type cale	
Organics		Threshold		Assessed Concentration	Type 4	2. Where a	number of we	aste types ar	e applicable	otal (TCT) or Leachable for any given substance	(i.e. the consideration
1	Metals (all conce	entrations <tc< td=""><td>T0 & LCT0):</td><td></td><td>No</td><td></td><td></td><td></td><td></td><td>file), the final waste typ a simultaneously.</td><td>e is determined by</td></tc<>	T0 & LCT0):		No					file), the final waste typ a simultaneously.	e is determined by
	Anions (all conce	entrations <tc< td=""><td>T0 & LCT0):</td><td>As above</td><td>Yes</td><td>3. Only whe</td><td>re laborator</td><td>y analysis ha</td><td>is resulted in</td><td>positive identification</td><td></td></tc<>	T0 & LCT0):	As above	Yes	3. Only whe	re laborator	y analysis ha	is resulted in	positive identification	
Total Organic Carbon	(%)	6	3		To Clarify To Clarify					mpared to their respect s than laboratory limits	
3TEX (Sum) Polychlorinated Biphenyls (PCBs)		1			To Clarify To Clarify	assumed to	be absent).				
Vineral Oil (>C10-C40)		500			To Clarify					g of liquid wastes is un quid media to the LCT	
Pesticides							es cannot pro				
Aldrin + Dieldrin		0.05			To Clarify						
DDT + DDD + DDE ,4-Dichlorophenoxyacetic Acid (2,4-D)		0.05			To Clarify To Clarify						
hlordane		0.05			To Clarify						
Ieptachlor		0.05			To Clarify						
overall Screened Waste Type (notwithsta Type 3 Waste	nding potential d	lisposal prohib	itions, see belo	w)			f Landfill (G C / G]		2013)		
Physicochemical Disposal Prohibiti	ONS (notwithstand	ding other potent	ial restrictions a	ssociated with Waste Typ	e)						
PCBs > 50ppm		PCBs (ppm):			Not assessed or less than labe	oratory limit o	f detection				
Explosive, corrosive or oxidising accordin	g to SANS 1023			No	Not applicable Not assessed						
H <6 or >12 Tashpoint <61° Celsius	F	pH: lashpoint (°C):			Not assessed Not assessed						
Moisture Content > 40%	Moisture	e Content (%):			Not assessed or 0%						
Hazardous with Calorific Value >10MJ/k		CV (MJ/kg): TOC (%):		No No	Not applicable Not applicable						
	70										
Hazardous with Total Organic Carbon >6 Brine (high salt content) >5% TDS	170	TDS (%):	N/A	N/A	Not applicable to a solid was	ste					

Appendix C

CLASSIFICATION

CONFIDENTIAL

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11.



WSP Reference: 41105637	Prepared For: Seriti Coal (Pty) Ltd
Generator: New Largo Coal (Pty) Ltd	Assessment Date: May 2023
Source Address: N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	
Production Process: Sample 1 - Sandstone 1	

General Appearance	Classification Summary
Soil	Not Hazardous (General)

Potential Hazard Statement Codes of Relevance

Composition & Quantitative Classification

Composition assessed in general accordance with the following hierarchy:

1. South African National Standard, Globally Harmonised System of Classification and Labelling of Chemicals (GHS), SANS 10234:2019, Edition 2

2. European Regulation (EC) No. 1272/2008, 'Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation)

Hazard Statement Codes for individual compounds are sourced from:

1. Supplement to SANS 10234:2008 Edition 1

2. Table 3.1 of Annex VI of the CLP Regulations

3. European Chemicals Agency, Classification & Labelling Inventory Database

4. Product (Material) Safety Data Sheet

Where relevant, recorded concentrations have been converted from dry weight values to account for the recorded moisture content of material.

Quantitative screening assessment of individual Hazard Statement Codes presented on the following pages.

Hazard Statement	Hazard Statement	Generic Cut- Off Value	Off Value	Generic Cut-Off Value and Test Comments	Assessment Concentration	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
Code		(%)	(ppm)	PHYSICAL HAZARD	(ppm) STATEMENTS			
				If >0% then classified under H200 unless further	No substances			
H200	Unstable explosive	0	0	information and/or testing proves otherwise	identified	Not applicable	No	
H201	Explosive; mass explosion hazard	0	0	If >0% then classified under H201 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H202	Explosive; severe projection hazard	0	0	If >0% then classified under H202 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H203	Explosive; fire, blast or projection hazard	0	0	If >0% then classified under H203 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H204	Fire or projection hazard	0	0	If >0% then classified under H204 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H205	May mass explode in fire	0	0	If >0% then classified under H205 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H220	Extremely flammable gas	0	0	If >0% then classified under H220 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H221	Flammable gas	0	0	If >0% then classified under H221 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H222	Extremely flammable aerosol	0	0	If >0% then classified under H222 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H223	Flammable aerosol	0	0	If >0% then classified under H223 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H224	Extremely flammable liquid and vapour	0	0	If >0% then classified under H224 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H225	Highly flammable liquid and vapour	0	0	If >0% then classified under H225 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H226	Flammable liquid and vapour	0	0	If >0% then classified under H226 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H227	Combustible liquid	0	0	If >0% then classified under H227 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H228	Flammable solid	0	0	If >0% then classified under H228 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H229	Pressurised container: may burst if heated	0	0	Relevant only for pressurised containers	Not applicable	Not applicable	No	
H230	May react explosively even in the absence of air	0	0	If >0% then classified under H230 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H231	May react explosively even in the absence of air at elevated pressure and/or temperature	0	0	If >0% then classified under H231 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H240	Heating may cause an explosion	0	0	If >0% then classified under H240 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H241	Heating may cause a fire or explosion	0	0	If >0% then classified under H241 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H242	Heating may cause a fire	0	0	If >0% then classified under H242 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comment
H250	Catches fire spontaneously if exposed to air	0	0	If >0% then classified under H250 unless further information and/or testing proves otherwise	28.00	Potential to catch fire spontaneously if exposed to air: detailed assessment required	Not likely at recorded concentration	
1251	Self-heating; may catch fire	0	0	If >0% then classified under H251 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
1252	Self-heating in large quantities; may catch fire	0	0	If >0% then classified under H252 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
In contact with wa releases flammable gases that may ign		0	0	If >0% then classified under H260 unless further information and/or testing proves otherwise	14.00	Assessment, see below	Substance- specific assessments: see below	
		0.0076	76.1	<u>Element-specific assessment</u> Concentration of aluminium phosphide required to evolve sufficient volume of phosphine in contact with water to potentially render hazardous; based on stoichiometry	No analysis for aluminium	Not applicable	No	
	In contact with water releases flammable gases that may ignite spontaneously	0.108	1076	<u>Element-specific assessment</u> Concentration of free magnesium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for magnesium	Not applicable	No	
		0.346	3463	<u>Element-specific assessment</u> Concentration of free potassium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for potassium	Not applicable	No	
		0.204	2036	<u>Element-specific assessment</u> Concentration of free sodium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for sodium	Not applicable	No	
		0	0	If >0% then classified under H261 unless further information and/or testing proves otherwise	285.50	Assessment, see below	Substance- specific assessments: see below	
	In contact with water	0.608	6082	<i>Element-specific assessment</i> Concentration of free barium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	571.00	Unlikely to generate hazardous volume of hydrogen	No	
H261	releases flammable gas	0.177	1775	<u>Element-specific assessment</u> Concentration of free calcium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for calcium	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
		0	0	<u>Compound-specific assessment</u> Ferrosilicon may evolve sufficient hydrogen in contact with water to render hazardous; based on ratio of iron:silicon	Ferrosilicon not identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H270	May cause or intensify fire; oxidiser	0	0	If >0% then classified under H270 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H271	May cause fire or explosion; strong oxidiser	0	0	If >0% then classified under H271 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H272	May intensify fire; oxidiser	0	0	If >0% then classified under H272 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H280	Contains gas under pressure; may explode if heated	0	0	If >0% then classified under H280 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H281	Contains refrigerated gas; may cause cryogenic burns or injury	0	0	If >0% then classified under H281 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H290	May be corrosive to metals	0	0	If contributing substance >0% then conservatively classified under H290 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
				HEALTH HAZARD S	STATEMENTS			
H300	Fatal if swallowed	1	10000	If cumulative/additive concentrations of contributing substances >1% then conservatively classified under H300 (Category 1 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H301	Toxic if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H301 (Category 3 Acute Toxicity: Oral); pending further assessment	5.30	Further assessment not necessary	No	
H302	Harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H302 (Category 4 Acute Toxicity: Oral); pending further assessment	0.54	Further assessment not necessary	No	
H303	May be harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H303 (Category 5 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H304	May be fatal if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% then conservatively classified under H304 (Aspiration Hazard, Category 1); pending further assessment	No substances identified	Not applicable	No	
H305	May be harmful if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% classified under H305 (Aspiration Hazard, Category 2); pending further assessment	No substances identified	Not applicable	No	
H310	Fatal in contact with skin	1	10000	If cumulative/additive >1% classified under H310 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H311	Toxic in contact with skin	1	10000	If individual substance >1% classified under H311 (Category 3 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H312	Harmful in contact with skin	1	10000	If individual substance >1% classified under H312 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H313	May be harmful in contact with skin	1	10000	If individual substance >1% classified under H313 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H314	Causes severe skin	1	10000	If cumulative/additive >1% classified under H314 (Category 1 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
	burns and eye damage	≤2 pH U	nits ≥ 11.5	<u>pH-specific assessment</u> If ≤ 2 or ≥ 11.5 pH then classified as corrosive	pH not determined	Not applicable	Unclarified	
H315	Causes skin irritation	1	10000	If cumulative/additive >1% classified under H315 (Category 3 Skin Corrosion/Irritant), >10% then Category 2; pending further assessment	571.00	Further assessment not necessary	No	
H316	Causes mild skin irritation	10	100000	If cumulative/additive >10% classified under H316 (Category 3 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
H317	May cause an allergic skin reaction	0.1	1000	If individual substance ≥0.1% classified under H317 (Category 1 Skin Sensitisation); pending further assessment	19.90	Further assessment not necessary	No	
H318	Causes serious eye damage	1	10000	If cumulative/additive >1% classified under H318 (Category 2 Skin/Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H319	Causes serious eye irritation	10	100000	If cumulative/additive >10% classified under H319 (Category 2 Eye Sensitisation); pending further assessment	571.00	Further assessment not necessary	No	
H320	Causes eye irritation	10	100000	If cumulative/additive >10% classified under H320 (Category 2 Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H330	Fatal if inhaled	1	10000	If cumulative/additive >1% classified under H330 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H331	Toxic if inhaled	1	10000	If individual substance >1% classified under H331 (Category 3 Acute Toxicity); pending further assessment	5.30	Further assessment not necessary	No	
H332	Harmful if inhaled	1	10000	If individual substance >1% classified under H332 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н333	May be harmful if inhaled	1	10000	If individual substance >1% classified under H333 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	0.1	1000	If individual substance >0.1% classified under H334 (Category 1 Respiratory Sensitisation); pending further assessment	18.00	Further assessment not necessary	No	
Н335	May cause respiratory irritation	20	200000	If cumulative/additive >20% classified under H335 under Generic Limits; pending further assessment	571.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H336	May cause drowsiness or dizziness	20	200000	If cumulative/additive >20% classified under H336 under Generic Limits; pending further assessment	No substances identified	Not applicable	No	
H340	May cause genetic defects	0.1	1000	If individual substance >0.1% classified under H340 (Category 1 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H341	Suspected of causing genetic defects	1	10000	If individual substance >1% classified under H341 (Category 2 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H350	May cause cancer	0.1	1000	If individual substance >0.1% classified under H350 (Category 1 Carcinogen); pending further assessment	No substances identified	Not applicable	No	
H351	Suspected of causing cancer	0.1	1000	If individual substance >0.1% classified under H351 (Category 2 Carcinogen); pending further assessment	19.90	Further assessment not necessary	No	
H360	May damage fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H360 (Category 1 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361	Suspected of damaging fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H361 (Category 2 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361d	Suspected of damaging the unborn child	0.1	1000	If individual substance >0.1% classified under H361d; pending further assessment	No substances identified	Not applicable	No	
H362	May cause harm to breast-fed children	0.1	1000	If individual substance >0.1% classified under H362 (Additional Category Teratogen); pending further assessment	No substances identified	Not applicable	No	
H370	Causes damage to organs	1	10000	If individual substance >1% classified under H370 (Category 1 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H371	May cause damage to organs	1	10000	If individual substance >1% classified under H371 (Category 2 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H372	Causes damage to organs through prolonged or repeated exposure	1	10000	If individual substance >1% classified under H372 (Category 1 Repeat Exposure); pending further assessment	19.90	Further assessment not necessary	No	
U272	May cause damage to organs through	1	10000	If individual substance >1% classified under H373 (Category 2 Repeat Exposure); pending further assessment	No substances identified	Not applicable	No	
Н373	prolonged or repeated exposure	0.005	50	<u>PCB-specific assessment</u> If PCBs are present >0.005% then classified hazardous under H373	No analysis for PCBs	Not applicable	Unclarified: not anticipated	
				ENVIRONMENTAL HAZA	RD STATEMEN	ГS		
H400	Very toxic to aquatic life	1	10000	If cumulative/additive >1% classified under H400 (Category 1 Acute Aquatic Toxicity); pending further assessment	61.30	Further assessment not necessary	No	
H401	Toxic to aquatic life	25	250000	If modified cumulative/additive >25% classified under H401 (Category 2 Acute Aquatic Toxicity); pending further assessment	613.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H402	Harmful to aquatic life	25	250000	If modified cumulative/additive >25% classified under H402 (Category 3 Acute Aquatic Toxicity); pending further assessment	6130.00	Further assessment not necessary	No	
H410	Very toxic to aquatic life with long lasting effects	1	10000	If cumulative/additive >1% classified under H410 (Category 1 Chronic Aquatic Toxicity); pending further assessment	61.30	Further assessment not necessary	No	
H411	Toxic to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H411 (Category 2 Chronic Aquatic Toxicity); pending further assessment	613.00	Further assessment not necessary	No	
H412	Harmful to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H412 (Category 3 Chronic Aquatic Toxicity); pending further assessment	6150.90	Further assessment not necessary	No	
H413	May cause long lasting harmful effects to aquatic life	25	250000	If modified cumulative/additive >25% classified under H413 (Category 4 Chronic Aquatic Toxicity); pending further assessment	100.20	Further assessment not necessary	No	
H420	Harms public health and the environment by destroying ozone in the upper atmosphere	0.1	1000	If individual substance >0.1% classified under H420 (Category 1). Substances based on Annexes to the Montreal Protocol.	No substances identified	Not applicable	No	
Assumptions and Comments								

1. Acute Toxicity Estimates (ATE) have not been derived from LD50 data or conversion factors presented in SANS 10234; screening classification has been based on generic cut-off values. Where more detailed assessment is recommended, appropriate LD50 should be sourced based on current available data.

2. Ecotoxicity for Category 1 Acute and Chronic Hazards have assumed 1% threshold and additive compounds rather than utilisation of Weighting Factor/s presented in SANS 10234. Where more detailed assessment is recommended, this should follow the mixture-specific principles defined in SANS 10234.

3. Classification does not include European Union (EU), or other territory-specific, Hazard Statement Codes that may be applicable outside of the Republic of South Africa.

4. Only where data is presented, or where laboratory analysis has resulted in positive identification of substances (i.e. above laboratory limits of detection), have the applicable Hazard Statement Codes been appraised (i.e. substances determined to be at concentrations less than laboratory limits of detection have been assumed to be absent).

5. Unless exact speciation has been established through detailed analysis, classification has been based on reasonable assumptions of substances most-likely present based on expected behaviour within the material. It is recognised that this may not be applicable in all instances and, for clarity, a list of the individual substances appraised where assumptions have been made are listed below.

6. Where laboratory analysis has reported concentrations on a dry weight basis these have been converted to take account of sample moisture content using the formula:

Wet Weight Concentration = Dry Weight Concentration x ((100 - % moisture content)/100).

7. Where assessment has been undertaken on liquids, it has been assumed that 1-litre (volume) is equivalent to 1-kg (mass).

8. For additional details in respect of the individual substances that may render any given material type as hazardous, reference should be made to the appropriate Safety Data Sheet (SDS) which takes account of this classification or, if an SDS has not been prepared, the appropriate report relevant for this classification.

9. To the best of our knowledge, the information contained herein is accurate; however, WSP assumes no liability whatsoever for its accuracy or completeness. The classification of any material, and its appropriate management, remains the responsibility of the generator. All materials may present unknown hazards. Although certain hazards are described herein, it cannot be guaranteed that these are the only hazards that exist, or that these have been recognised in full.

List of Assumed Substances, where necessary

Antimony, Arsenic, Barium, Boron, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Vanadium, Zinc,


WASTE MANAGEMENT SUMMARY REPORT

WASTE IDENTIFICATION	Sample 2 – Sandstone 2
SOURCE	New Largo Coal (Pty) Ltd
DATE OF ASSESSMENT	March 2024

Relevant Regulations and Standards

- ✓ National Environmental Management: Waste Act (NEM: WA, 2008)
- ✓ National Environmental Management: Waste Amendment Act (NEM: WAA, 2014)
- ✓ National Environmental Management Laws Amendment Act (NEMLAA, 2022)
- ✓ Waste Classification and Management Regulations (GN R634 of 2013)
- ✓ Regulations for Hazardous Chemical Agents (GG 44366, 2021)
- ✓ National Norms and Standards for the Assessment of Waste to Landfill Disposal (GN R635 of 2013)
- ✓ National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)
- ✓ South African National Standard (SANS) 10234:2019, Globally Harmonised System of Classification and Labelling of Chemicals (GHS) (SANS 10234)
- ✓ South African National Standard (SANS) 11014:2010, Safety Data Sheet for Chemical Products Content and Order of Sections (SANS 11014)

Scope

Included	Element	Description
✓	Defined and Listed Waste Appraisal	Desktop appraisal of whether the waste is defined under Schedule 3 of the NEM: WAA and/or listed in Annexure 1 of GN R634. Wastes either defined or listed do not necessarily require classification in terms of SANS 10234.
✓	Appraisal of Disposal Prohibitions	Determination of possible disposal prohibitions in terms of GN R636.
✓	Waste Type Profiling for Landfill Disposal	Profiling in accordance with GN R635 and/or Waste Acceptance Criteria as detailed in GN R636.
\checkmark	Classification	Quantitative classification in broad accordance with SANS 10234.
×	Safety Data Sheet	A Safety Data Sheet (SDS) is required for all hazardous waste (excluding Health Care Risk Waste) in terms of GN R634.

Waste Description

Process Origin	Chemical Inputs	Physical Characteristics
N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	None known	Solid

Defined Waste Appraisal

Listed in Schedule 3 of NEM: WAA	Yes
Descriptor	Category A: Wastes resulting from exploration, mining quarrying, and physical and chemical treatment of minerals (a) wastes from mineral excavation.
1. The above descriptor also takes account of the proceeding classification	



Listed Waste Appraisal

Listed in Annexure 1 of GN R634	No
Descriptor	Not applicable
2. Not categorically listed in GN R634	•

Sampling and Laboratory Analysis

Sampler	Date	Comments		
WSP	February 2023	Representative samples were collected by W analysis.	/SP and subr	nitted for
Analytical Suit	te		Μ	atrix
			Total	Leachate
Metals and me	etalloids, as listed in G	N R635		
Antimony, arse	nic, barium, boron, cadn	nium, chromium (total and hexavalent), cobalt,	\checkmark	\checkmark
copper, lead, m	nanganese, mercury, mo	lybdenum, nickel, selenium, vanadium, and	v	v
zinc				
Inorganics, as	listed in GN R635			
Chloride, nitrate	e, sulphate, and Total Di	ssolved Solids	N/A	\checkmark
Cyanide and flu	uoride		\checkmark	\checkmark
Organics, as l	isted in GN R635			
Benzene, tolue	ne, ethylbenzene, and x	ylenes (BTEX)	×	×
Petroleum hydr	ocarbons		×	N/A
Polychlorinated	l Biphenyls (PCB)		×	×
Polycyclic Aromatic Hydrocarbons (PAH)		×	N/A	
Volatile and Semi-Volatile Organic Compounds (VOC and SVOC)		×	×	
	listed in GN R635			
Aldrin + Dieldrin		×	×	
DDT + DDD + I	DDE		×	×
2,4-D			×	×
Chlordane			×	×
Heptachlor	-		×	×
	neters, to support class	sification and disposal restriction appraisal.		
Calorific Value			×	×
Flashpoint			×	×
Mineral Oil			×	× ×
Moisture Conte	ent		×	× N/A
pH			×	IN/A ×
Total Organic C	. ,		~	~
••	y Parameters reasonal	•	**	
Aluminium, cale	cium, iron, magnesium, p	potassium, sodium, and phosphorous	×	×

Notes to Laboratory Analysis

1. N/A – Not applicable

2. As per GN R635, leachate was prepared using reagent water applicable to a mono-disposal scenario.

3. Whilst not all the substances above are likely to be present, the suite represents those determinants listed within the variously applicable Norms and Standards alongside other parameters that are expected.

4. It should be noted that pesticides have been omitted from the analytical suite as it is unreasonable to suspect their presence within the stream.

5. Laboratory certificate of analysis provided within **Appendix A** including details of any analysis unable to be completed based on the sample matrix.



Appraisal of Disposal Prohibitions

Restrictive Condition	Description
None identified	N/A

Waste Type Profiling for Landfill Disposal¹

Waste Type	Landfill Class
Туре 3	Class C

1. Refer to Appendix B for indicative profiling assessment.

 Type Profiling is based on consideration of total and leachate concentrations of substances published in Paragraph 6 of GN R635 and the appropriate landfill class is determined with reference to the Waste Acceptance Criteria in Paragraph 4 of GN R636.

3. While reference is made in GN R634 to the application of SANS 10234 classification to Waste Type Profiling, the then Department of Environmental Affairs (DEA) confirmed during stakeholder engagement that Hazard Statement Codes for transportation and handling are not intended to be utilised for Waste Type Profiling for landfill disposal.

SANS 10234 Classification

Hazardous	Non-Hazardous ✓

- 1. Refer to **Appendix C** for the quantitative screening classification.
- Assumptions in terms of the chemical form (speciation) in which elemental components of the waste stream are likely to occur have generally been conservative considering plausible thermodynamic and mineralogical assemblages.
- 3. Where applicable to the sample medium, results of laboratory analysis have been corrected according to sample-specific moisture content.
- 4. Where SANS 10234 guidance is either not available, unclear, or relatively incomplete, cognisance has been taken of European Regulation (EC) No. 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) that adopts, within the European community, the GHS as published by the United Nations Social and Economic Council.
- Hazard Statement Codes for the substances have been sourced from either the supplement to SANS 10234:2008 Edition 1, Table 3.1 of Annex VI of the CLP Regulations, or the European Chemicals Agency, Classification & Labelling Inventory Database.
- 6. Cognisance must be taken of the need to reclassify the waste every five years, or if the generation process changes or, otherwise, if more data becomes available.

Safety Data Sheet

Required	No		

Appendices

Appendix	Title
Α	Laboratory Analytical Certificates
В	Type Profiling Assessment (GN R635/636)
С	Screening Material Classification (SANS 10234)

¹ Subject to any prohibitions



Waiver

The Waste Management Summary Report (Report) has been prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf and at the request of Seriti Coal (Pty) Ltd (Client), to provide the Client with an understanding of the Relevant Documents.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report except where otherwise indicated.

Authorisation

Shameer Hareeparsad Principal Associate Shameer.Hareeparsad@wsp.com

Appendix A

LABORATORY ANALYTICAL CERTIFICATES

CONFIDENTIAL



Element Materials Technology Unit D2 & D5 9 Quantum Road Firgrove Business Park Somerset West 7130 South Africa

W: www.element.com

WSP Group Africa Building C, Knightsbridge 33 Sloane Street Bryanston Johannesburg Gauteng South Africa 2191

Attention :	Shameer Hareeparsad
Date :	3rd March, 2023
Your reference :	21465149
Our reference :	Test Report 23/107 Batch 1
Location :	Seriti New Largo
Date samples received :	21st February, 2023
Status :	Final report
Issue :	1

Ten samples were received for analysis on 21st February, 2023 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Analysis was undertaken at either Element Materials Technology UK, which is ISO 17025 accredited under UKAS (4225) or Element Materials Technology (SA) which is ISO 17025 accredited under SANAS (T0729) or a subcontract laboratory where specified.

NOTE: Under International Laboratory Accreditation Cooperation (ILAC), ISO 17025 (UKAS) accreditation is recognised as equivalent to SANAS (South Africa) accreditation.

Authorised By:

Jeanri Stevens Laboratory Supervisor

Inorganics Laboratory:

Aubrey Lindi Technical Signatory (Inorganics)

Please include all sections of this report if it is reproduced

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023	20/02/2023			
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt					21/02/2023			21/02/2023			LOD/LOR	Units	Method No.
Antimony*	1	2	<1	<1	<1	1	3	3	2	2	<1	mg/kg	UK_TM30/UK_PM15
Arsenic*	6.9	6.5	1.4	6.1	4.5	5.3	4.1	3.8	8.8	11.5	<0.5	mg/kg	UK_TM30/UK_PM15
Barium*	116	150	99	99	170	571	136	121	472	388	<1	mg/kg	UK_TM30/UK_PM15
Cadmium*	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	UK_TM30/UK_PM15
Chromium*	30.1	28.2	6.9	25.1	28.3	42.4	88.1	48.8	42.1	47.0	<0.5	mg/kg	UK_TM30/UK_PM15
Cobalt*	11.5	91.5	1.1	13.0	16.6	18.0	17.7	17.3	24.4	15.9	<0.5	mg/kg	UK_TM30/UK_PM15
Copper*	45	53	14	49	46	15	28	18	51	56	<1	mg/kg	UK_TM30/UK_PM15
Lead* Manganese*	22 730	36 1197	21 74	26 62	28 450	7 1662	18 496	17 576	31 818	29 387	<5 <1	mg/kg mg/kg	UK_TM30/UK_PM15 UK_TM30/UK_PM15
Mercury*	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	mg/kg	UK TM30/UK PM15
Molybdenum*	1.3	5.2	0.1	0.2	0.7	1.3	0.8	0.8	1.8	2.2	<0.1	mg/kg	UK_TM30/UK_PM15
Nickel*	22.7	144.0	5.1	15.2	27.3	19.9	29.4	29.8	43.0	41.0	<0.7	mg/kg	UK_TM30/UK_PM15
Selenium*	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	UK_TM30/UK_PM15
Vanadium*	49	65	11	26	91	20	68	56	72	64	<1	mg/kg	UK_TM30/UK_PM15
Boron (Aqua Regia Soluble)*	2.87	6.40	12.36	6.42	10.91	0.54	<0.25	<0.25	1.08	1.86	<0.25	mg/kg	UK_TM30/UK_PM15
Zinc*	131	159	<5	142	105	56	110	120	197	130	<5	mg/kg	UK_TM30/UK_PM15
Fluoride	0.7	1.5	0.7	0.5	1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	malka	SA_TM27/SA_PM20
Hexavalent Chromium*	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	<0.3	<0.3	<0.3	<0.3	mg/kg mg/kg	UK_TM38/UK_PM20
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0		
Total Cyanide*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	UK_TM89/UK_PM45

Client Name:
Reference:
Location:
Contact:
EMT Job No:

WSP Group Africa 21465149 Seriti New Largo Shameer Hareeparsad 23/107

Report : ASLP (20:1) - Reagent Water

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10			
Sample ID	Sample A- Sandstone	Sample B- Shale	Sample C- Carbonaceous Shale	Sample D- Sandstone	Sample E- Sandstone	Sample1- Sandstone1	Sample2- Sandstone2	Sample3- Subsoil1	Sample4- Subsoil2	Sample5- Whiteish Softs			
Depth	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	Please se	e attached n	otes for all
COC No / misc												ations and ad	
Containers	в	в	в	в	в	в	в	в	в	в			
Sample Date			20/02/2023	20/02/2023		20/02/2023							
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt													
Dissolved Antimony*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Arsenic* Dissolved Barium*	<2.5 289	<2.5 257	<2.5 214	<2.5 229	<2.5 161	<2.5 272	<2.5 231	<2.5 274	<2.5 246	<2.5 272	<2.5 <3	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Boron*	289	237	15	229	24	50	69	63	88	72	<12	ug/l ug/l	UK_TM30/UK_PM14
Dissolved Cadmium*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	UK_TM30/UK_PM14
Dissolved Chromium*	<1.5	<1.5	<1.5	<1.5	<1.5	2.1	<1.5	<1.5	1.9	2.7	<1.5	ug/l	UK_TM30/UK_PM14
Dissolved Cobalt*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Copper*	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	UK_TM30/UK_PM14
Dissolved Lead*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	UK_TM30/UK_PM14
Dissolved Manganese*	<2	<2	<2	<2	<2	34	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Mercury*	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	ug/l	UK_TM30/UK_PM14
Dissolved Molybdenum*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Nickel*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	UK_TM30/UK_PM14
Dissolved Selenium* Dissolved Vanadium*	<3 1.7	<3 <1.5	<3 <1.5	<3 2.4	<3 <1.5	<3 <1.5	<3 <1.5	<3 3.2	<3 2.0	<3 3.9	<3 <1.5	ug/l	UK_TM30/UK_PM14 UK_TM30/UK_PM14
Dissolved Zinc*	7	11	10	11	14	20	14	17	12	3.9 18	<1.5	ug/l ug/l	UK_TM30/UK_PM14
	,		10		14	20			12	10	-0	ugn	
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Chloride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	0.4	<0.3	<0.3	<0.3	mg/l	SA_TM27/SA_PM0
Sulphate	2.9	1.9	1.2	3.1	0.8	2.7	2.9	2.4	2.7	2.5	<0.5	mg/l	SA_TM27/SA_PM0
Nitrate as N	0.07	<0.05	<0.05	0.11	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	mg/l	SA_TM27/SA_PM0
Total Cyanide*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	UK_TM89/UK_PM0
Hexavalent Chromium*	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	UK_TM38/UK_PM0
Total Dissolved Solids	<35	<35	<35	38	<35	65	36	102	136	84	<35	mg/l	SA_TM20/SA_PM80
pH	6.99	6.98	7.91	8.58	7.36	7.78	7.28	8.65	8.13	7.88	<2.00	pH units	SA_TM19/SA_PM0
			-			-	-						

Client Name:	WSP Group Africa
Reference:	21465149
Location:	Seriti New Largo
Contact:	Shameer Hareeparsad

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason						
	No deviating sample report results for job 23/107											

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/107

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation. Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/107

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
SA_TM19	Determination of pH by bench pH meter	SA_PM0	No preparation is required.			AR	No
SA_TM20	Modified BS 1377-3: 1990 Gravimetric determination of Total Dissolved Solids	SA_PM80	A 20:1 ratio of leaching fluid to as received soil, is leached for 18 hours. The client can choose to use any of the following leaching fluids a) deionised water b) pH5 c) pH 5/pH2.9 depending on pH of sample d) pH9.2			AR	No
SA_TM27	Major ions by lon Chromatography	SA_PM0	No preparation is required.				
SA_TM27	Major ions by lon Chromatography	SA_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a orbital shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a orbital shaker.			AD	Yes
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				No
UK_TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	UK_PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.				Yes
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM0	No preparation is required.				No
UK_TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	UK_PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.				Yes
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM0	No preparation is required.				No
UK_TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	UK_PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.				Yes

Appendix B

TYPE PROFILING

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11.



Waste Type Profiling and Disposal Prohibition Appraisal Based on National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN R635 of 2013) together with National Norms and Standards for Disposal of Waste to Landfill (GN R636 of 2013)

of Waster New Largo Coal (Ptv) Ltd. N4 and N12 highways between Bronkhorstspruit and eMalahleni towns, Sample 2 - Sandstone 2

Source of Wast		oal (Pty) Ltd, 1	N4 and N12 hig	ghways between Bronkh	norstspruit and eMalahleni tow	vns, Sample 2	- Sandstone 2				
Waste Matrix (Liquid / Solid Leachate Preparation (Solids Only		ble (Mono-Disp	osal): Reagent	Water				Арр	oraisal Date:	May 2023	
		oncentratio		olid/Total	Waste Type		Concentra	ation (ppm	ı) - Leacha		Waste Type
Substance	ТСТ0	TCT1	TCT2	Assessed Concentration	(based on TCTs only; subject to LCTs)	° LCT0	LCT1	LCT2	LCT3	Assessed Concentration	(based on LCTs only; subject to TCTs)
Metal Ions											
Arsenic Boron	5.8 150	500 15000	2000 60000	4.1	Type 4	0.01	0.5	1 50	4 200	0.069	Type 4
Barium	62.5	6250	25000	136	Type 3	0.7	35	70	280	0.231	Type 4
Cadmium Cobalt	7.5 50	260 5000	1040 20000	17.7	Type 4	0.003	0.15	0.3 50	1.2 200		
Chromium	46000	800000	-	88.1	Type 4	0.1	5	10	40		
Chromium (Hexavalent) Copper	6.5 16	500 19500	2000 78000	28	Type 3	0.05	2.5 100	5 200	20 800		
Mercury	0.93	160	640	20	Type 5	0.006	0.3	0.6	2.4		
Manganese Molybdenum	1000 40	25000 1000	100000 4000	496 0.8	Type 4 Type 4	0.5	25 3.5	50 7	200 28		
Nickel	91	10600	42400	29.4	Type 4 Type 4	0.07	3.5	7	28		
Lead Antimony	20 10	1900 75	7600 300	18	Type 4 Type 4	0.01 0.02	0.5	1	4		
Selenium	10	50	200	5	Type 4	0.02	0.5	1	4		
Vanadium	150 240	2680 160000	10720 640000	68 110	Type 4	0.2	10 250	20 500	80 2000	0.014	Tune 4
Zinc Inorganic Anions	240	100000	040000	110	Type 4	5	250	500	2000	0.014	Type 4
Total Dissolved Solids		-	-		t Applicable	1000	12500	25000	100000	36	Type 4
Chloride		-	-		t Applicable	300	15000	30000	120000	0.4	Type 4
Sulphate Nitrate			-		t Applicable t Applicable	250 11	12500 550	25000 1100	100000 4400	2.9 0.3987	Type 4 Type 4
Fluoride	100	10000	40000	110	rippileuoio	1.5	75	150	600	0.3987	1 ype 4
Cyanide	14	10500	42000			0.07	3.5	7	28		
Organics Benzene		10	40				0.01	0.02	0.08		
Benzo(a)pyrene	•	1.7	6.8			-	0.035	0.07	0.28		
Carbon tetrachloride Chlorobenzene	-	4 8800	16 35200			-	0.2	0.4	1.6 40		
Chloroform		700	2800			-	15	30	120		
2-Chlorophenol Bis(2-ethylhexyl)phthalate	-	2100 40	8400 160			-	15 0.5	30 1	120		
1,2-Dichlorobenzene	-	31900	127600			-	5	10	40		
1,4-Dichlorobenzene 1,2-Dichloroethane	-	18400 3.7	73600 14.8			-	15	30 3	120		
1,1-Dichloroethene	-	150	600			-	0.35	0.7	2.8		
1,2-Dichloroethene Dichloromethane	-	3750 16	15000 64			-	2.5 0.25	5 0.5	20		
2,4-Dichlorophenol	-	800	3200			-	10	20	80		
2,4-Dinitrotoluene Ethylbenzene	-	5.2 540	20.8 2160			-	0.065	0.13	0.52 28		
Formaldehyde	-	2000	8000			-	25	50	200		
Hexachlorobutadiene	-	2.8	5.4 32000			-	0.03	0.06	0.24		
Methyl Ethyl Ketone (2-Butanone) Methyl Tertiary Butyl Ether		8000 1435	5740			-	100 2.5	200 5	800 20		
Nitrobenzene	-	45	180			-	1	2	8		
Total PAHs >C6-C9		50 650	200 2600			-	-	-	-		pplicable pplicable
>C10-C36		10000	40000								pplicable
Phenol		560	2240			-	7	14	56		
Polychlorinated Biphenyls (PCBs) Styrene	-	12 120	48 480			-	0.025	0.05	0.2		
1,1,1,2-Tetrachloroethane	-	400	1600			-	5	10	40		
1,1,2,2-Tetrachloroethane Tetrachloroethene	-	5 200	20 800			-	0.65	1.3 0.5	5.3 2		
Toluene	-	1150	4600			-	35	70	280		
Trichlorobenzenes (Sum) 1,1,1-Trichloroethane	-	3300 1200	13200 4800			-	3.5	7	28 120		
1,1,2-Trichloroethane	-	48	192			-	0.06	1	4		
Trichloroethene 2,4,6-Trichlorophenol	-	11600 1770	46400 7080			-	0.25	2 20	8 80		
Vinyl chloride	-	1.5	6			-	0.015	0.03	0.12		
Xylenes (Sum) Pesticides	-	890	3560			-	25	50	200		
Aldrin + Dieldrin	0.05	1.2	4.8			-	0.015	0.03	0.03		
DDT + DDD + DDE 2,4-Dichlorophenoxyacetic Acid (2,4-D)	0.05	50 120	200 480			-	1	2	2		
Chlordane	0.05	4	16			-	0.05	0.1	0.1		
Heptachlor Supplementar	0.05 v Considerat	1.2 tion for Con	4.8 firmation of	Type 4 Waste Ty	pe		0.015	0.03	0.03	les	
Supplemental		ncentration			Satisfy				from the mo.	st conservative type cal	
Organics		Threshold		Assessed	Type 4					otal (TCT) or Leachable for any given substance	
Ν	Ietals (all conce		T0 & LCT0):	Concentration As above	No	of TCTs in	isolation can	not result in	a Type 4 pro	file), the final waste typ	
	nions (all conce			As above	Yes					a simultaneously. positive identification o	of substances (i.e. above
Total Organic Carbon	(%)		3		To Clarify	laboratory	limits of dete	ction) have t	hese been co	mpared to their respect	ive TCTs and LCTs (i.e.
BTEX (Sum) Polyableringtod Biphonyls (PCBs)		6			To Clarify To Clarify	assumed to	be absent).				s of detection have been
Polychlorinated Biphenyls (PCBs) Mineral Oil (>C10-C40)		500			To Clarify To Clarify					g of liquid wastes is un quid media to the LCT	dertaken by comparing thresholds given that
Pesticides									ate extract fo		conorao given inal
Aldrin + Dieldrin		0.05			To Clarify						
DDT + DDD + DDE 2,4-Dichlorophenoxyacetic Acid (2,4-D)		0.05			To Clarify To Clarify						
2,4-Dichlorophenoxyacetic Acid (2,4-D) Chlordane		0.05			To Clarify To Clarify						
Heptachlor		0.05			To Clarify						
	ding potential d	isposal prohibi	itions, see belo	w)			of Landfill (C		2013)		
			ial res <u>trictions a</u>	ssociated with Waste Typ	e)						
Type 3 Waste	ns (notwithstand	ing other notent	and a second sec	y/	Not assessed or less than lab	oratory limit o	of detection				
Type 3 Waste Physicochemical Disposal Prohibitic	ns (notwithstand	PCBs (ppm):			Not assessed of less than lab						
Type 3 Waste Physicochemical Disposal Prohibitio PCBs > 50ppm Explosive, corrosive or oxidising according		PCBs (ppm):		No	Not applicable						
Type 3 Waste Physicochemical Disposal Prohibitio PCBs > 50ppm Explosive, corrosive or oxidising according pH <6 or >12	to SANS 10234	PCBs (ppm): 4 pH:		No							
Overall Screened Waste Type (notwithstan Type 3 Waste Physicochemical Disposal Prohibitio PCBs > 50ppm Explosive, corrosive or oxidising according pH < 6 or >12 Floathpoint <61° Celsius Moisture Content > 40%	to SANS 10234 Fl Moisture	PCBs (ppm): 4 pH: ashpoint (°C): e Content (%):			Not applicable Not assessed Not assessed Not assessed or 0%						
Type 3 Waste Physicochemical Disposal Prohibitio PCBs > 50ppm Explosive, corrosive or oxidising according pH <6 or >12 Flashpoint <61° Celsius Moisture Content > 40% Hazardous with Calorific Value >10MJ/kg	to SANS 10234 Fl Moisture	PCBs (ppm): 4 pH: ashpoint (°C): content (%): CV (MJ/kg):		No	Not applicable Not assessed Not assessed Not assessed or 0% Not applicable						
Type 3 Waste Physicochemical Disposal Prohibitio PCBs > 50ppm Explosive, corrosive or oxidising according pH <6 or >12 Flashpoint <61° Celsius	to SANS 10234 Fl Moisture	PCBs (ppm): 4 pH: ashpoint (°C): e Content (%):			Not applicable Not assessed Not assessed Not assessed or 0%	ste					

Appendix C

CLASSIFICATION

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11.



WSP Reference: 41105637	Prepared For: Seriti Coal (Pty) Ltd
Generator: New Largo Coal (Pty) Ltd	Assessment Date: May 2023
Source Address: N4 and N12 highways between Bronkhorstspruit and eMalahleni towns	
Production Process: Sample 2 - Sandstone 2	

General Appearance	Classification Summary
Soil	Not Hazardous (General)

Potential Hazard Statement Codes of Relevance

Composition & Quantitative Classification

Composition assessed in general accordance with the following hierarchy:

1. South African National Standard, Globally Harmonised System of Classification and Labelling of Chemicals (GHS), SANS 10234:2019, Edition 2

2. European Regulation (EC) No. 1272/2008, 'Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation)

Hazard Statement Codes for individual compounds are sourced from:

1. Supplement to SANS 10234:2008 Edition 1

2. Table 3.1 of Annex VI of the CLP Regulations

3. European Chemicals Agency, Classification & Labelling Inventory Database

4. Product (Material) Safety Data Sheet

Where relevant, recorded concentrations have been converted from dry weight values to account for the recorded moisture content of material.

Quantitative screening assessment of individual Hazard Statement Codes presented on the following pages.

Hazard Statement	Hazard Statement	Generic Cut- Off Value	Off Value	Generic Cut-Off Value and Test Comments	Assessment Concentration	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
Code		(%)	(ppm)	PHYSICAL HAZARD	(ppm) STATEMENTS			
H200	Unstable explosive	0	0	If >0% then classified under H200 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H201	Explosive; mass explosion hazard	0	0	If >0% then classified under H201 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H202	Explosive; severe projection hazard	0	0	If >0% then classified under H202 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H203	Explosive; fire, blast or projection hazard	0	0	If >0% then classified under H203 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H204	Fire or projection hazard	0	0	If >0% then classified under H204 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H205	May mass explode in fire	0	0	If >0% then classified under H205 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H220	Extremely flammable gas	0	0	If >0% then classified under H220 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H221	Flammable gas	0	0	If >0% then classified under H221 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H222	Extremely flammable aerosol	0	0	If >0% then classified under H222 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H223	Flammable aerosol	0	0	If >0% then classified under H223 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H224	Extremely flammable liquid and vapour	0	0	If >0% then classified under H224 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H225	Highly flammable liquid and vapour	0	0	If >0% then classified under H225 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H226	Flammable liquid and vapour	0	0	If >0% then classified under H226 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H227	Combustible liquid	0	0	If >0% then classified under H227 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H228	Flammable solid	0	0	If >0% then classified under H228 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H229	Pressurised container: may burst if heated	0	0	Relevant only for pressurised containers	Not applicable	Not applicable	No	
H230	May react explosively even in the absence of air	0	0	If >0% then classified under H230 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H231	May react explosively even in the absence of air at elevated pressure and/or temperature	0	0	If >0% then classified under H231 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H240	Heating may cause an explosion	0	0	If >0% then classified under H240 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H241	Heating may cause a fire or explosion	0	0	If >0% then classified under H241 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H242	Heating may cause a fire	0	0	If >0% then classified under H242 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)
H250	Catches fire spontaneously if exposed to air	0	0	If >0% then classified under H250 unless further information and/or testing proves otherwise	55.00	Potential to catch fire spontaneously if exposed to air: detailed assessment required	Not likely at recorded concentration
H251	Self-heating; may catch fire	0	0	If >0% then classified under H251 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
H252	Self-heating in large quantities; may catch fire	0	0	If >0% then classified under H252 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No
		0	0	If >0% then classified under H260 unless further information and/or testing proves otherwise	27.50	Assessment, see below	Substance- specific assessments: see below
	In contact with water releases flammable gases that may ignite spontaneously	0.0076	76.1	<u>Element-specific assessment</u> Concentration of aluminium phosphide required to evolve sufficient volume of phosphine in contact with water to potentially render hazardous; based on stoichiometry	No analysis for aluminium	Not applicable	No
H260		0.108	1076	<i>Element-specific assessment</i> Concentration of free magnesium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for magnesium	Not applicable	No
		0.346	3463	<u>Element-specific assessment</u> Concentration of free potassium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for potassium	Not applicable	No
		0.204	2036	<u>Element-specific assessment</u> Concentration of free sodium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for sodium	Not applicable	No
H 261		0	0	If >0% then classified under H261 unless further information and/or testing proves otherwise	68.00	Assessment, see below	Substance- specific assessments: see below
	In contact with water	0.608	6082	<u>Element-specific assessment</u> Concentration of free barium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	136.00	Unlikely to generate hazardous volume of hydrogen	No
	In contact with water releases flammable gas	0.177	1775	<u>Element-specific assessment</u> Concentration of free calcium required to evolve sufficient volume of hydrogen in contact with water to potentially render hazardous; based on stoichiometry	No analysis for calcium	Not applicable	No

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)		Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
		0	0	<u>Compound-specific assessment</u> Ferrosilicon may evolve sufficient hydrogen in contact with water to render hazardous; based on ratio of iron:silicon	Ferrosilicon not identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H270	May cause or intensify fire; oxidiser	0	0	If >0% then classified under H270 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H271	May cause fire or explosion; strong oxidiser	0	0	If >0% then classified under H271 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H272	May intensify fire; oxidiser	0	0	If >0% then classified under H272 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H280	Contains gas under pressure; may explode if heated	0	0	If >0% then classified under H280 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H281	Contains refrigerated gas; may cause cryogenic burns or injury	0	0	If >0% then classified under H281 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
H290	May be corrosive to metals	0	0	If contributing substance >0% then conservatively classified under H290 unless further information and/or testing proves otherwise	No substances identified	Not applicable	No	
				HEALTH HAZARD S	STATEMENTS			
H300	Fatal if swallowed	1	10000	If cumulative/additive concentrations of contributing substances >1% then conservatively classified under H300 (Category 1 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H301	Toxic if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H301 (Category 3 Acute Toxicity: Oral); pending further assessment	4.10	Further assessment not necessary	No	
H302	Harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H302 (Category 4 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H303	May be harmful if swallowed	1	10000	If individual substance concentration >1% then conservatively classified under H303 (Category 5 Acute Toxicity: Oral); pending further assessment	No substances identified	Not applicable	No	
H304	May be fatal if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% then conservatively classified under H304 (Aspiration Hazard, Category 1); pending further assessment	No substances identified	Not applicable	No	
H305	May be harmful if swallowed and enters airways	10	100000	If cumulative/additive concentrations of contributing substances ≥10% classified under H305 (Aspiration Hazard, Category 2); pending further assessment	No substances identified	Not applicable	No	
H310	Fatal in contact with skin	1	10000	If cumulative/additive >1% classified under H310 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H311	Toxic in contact with skin	1	10000	If individual substance >1% classified under H311 (Category 3 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H312	Harmful in contact with skin	1	10000	If individual substance >1% classified under H312 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н313	May be harmful in contact with skin	1	10000	If individual substance >1% classified under H313 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H314	Causes severe skin burns and eye damage	1	10000	If cumulative/additive >1% classified under H314 (Category 1 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
	but his and eye dannage	≤2 pH Uı	nits ≥ 11.5	<i>pH-specific assessment</i> If ≤2 or ≥11.5 pH then classified as corrosive	pH not determined	Not applicable	Unclarified	
H315	Causes skin irritation	1	10000	If cumulative/additive >1% classified under H315 (Category 3 Skin Corrosion/Irritant), >10% then Category 2; pending further assessment	136.00	Further assessment not necessary	No	
H316	Causes mild skin irritation	10	100000	If cumulative/additive >10% classified under H316 (Category 3 Skin Corrosion/Irritant); pending further assessment	No substances identified	Not applicable	No	
H317	May cause an allergic skin reaction	0.1	1000	If individual substance ≥0.1% classified under H317 (Category 1 Skin Sensitisation); pending further assessment	29.40	Further assessment not necessary	No	
H318	Causes serious eye damage	1	10000	If cumulative/additive >1% classified under H318 (Category 2 Skin/Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H319	Causes serious eye irritation	10	100000	If cumulative/additive >10% classified under H319 (Category 2 Eye Sensitisation); pending further assessment	136.00	Further assessment not necessary	No	
H320	Causes eye irritation	10	100000	If cumulative/additive >10% classified under H320 (Category 2 Eye Sensitisation); pending further assessment	No substances identified	Not applicable	No	
H330	Fatal if inhaled	1	10000	If cumulative/additive >1% classified under H330 (Category 1 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H331	Toxic if inhaled	1	10000	If individual substance >1% classified under H331 (Category 3 Acute Toxicity); pending further assessment	4.10	Further assessment not necessary	No	
H332	Harmful if inhaled	1	10000	If individual substance >1% classified under H332 (Category 4 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
Н333	May be harmful if inhaled	1	10000	If individual substance >1% classified under H333 (Category 5 Acute Toxicity); pending further assessment	No substances identified	Not applicable	No	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	0.1	1000	If individual substance >0.1% classified under H334 (Category 1 Respiratory Sensitisation); pending further assessment	17.70	Further assessment not necessary	No	
Н335	May cause respiratory irritation	20	200000	If cumulative/additive >20% classified under H335 under Generic Limits; pending further assessment	136.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H336	May cause drowsiness or dizziness	20	200000	If cumulative/additive >20% classified under H336 under Generic Limits; pending further assessment	No substances identified	Not applicable	No	
H340	May cause genetic defects	0.1	1000	If individual substance >0.1% classified under H340 (Category 1 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H341	Suspected of causing genetic defects	1	10000	If individual substance >1% classified under H341 (Category 2 Mutagen); pending further assessment	No substances identified	Not applicable	No	
H350	May cause cancer	0.1	1000	If individual substance >0.1% classified under H350 (Category 1 Carcinogen); pending further assessment	No substances identified	Not applicable	No	
H351	Suspected of causing cancer	0.1	1000	If individual substance >0.1% classified under H351 (Category 2 Carcinogen); pending further assessment	29.40	Further assessment not necessary	No	
H360	May damage fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H360 (Category 1 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361	Suspected of damaging fertility or the unborn child	0.1	1000	If individual substance >0.1% classified under H361 (Category 2 Teratogen); pending further assessment	No substances identified	Not applicable	No	
H361d	Suspected of damaging the unborn child	0.1	1000	If individual substance >0.1% classified under H361d; pending further assessment	No substances identified	Not applicable	No	
H362	May cause harm to breast-fed children	0.1	1000	If individual substance >0.1% classified under H362 (Additional Category Teratogen); pending further assessment	No substances identified	Not applicable	No	
H370	Causes damage to organs	1	10000	If individual substance >1% classified under H370 (Category 1 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H371	May cause damage to organs	1	10000	If individual substance >1% classified under H371 (Category 2 Single Exposure); pending further assessment	No substances identified	Not applicable	No	
H372	Causes damage to organs through prolonged or repeated exposure	1	10000	If individual substance >1% classified under H372 (Category 1 Repeat Exposure); pending further assessment	29.40	Further assessment not necessary	No	
11272	May cause damage to organs through	1	10000	If individual substance >1% classified under H373 (Category 2 Repeat Exposure); pending further assessment	No substances identified	Not applicable	No	
H373	prolonged or repeated exposure	0.005	50	<u>PCB-specific assessment</u> If PCBs are present >0.005% then classified hazardous under H373	No analysis for PCBs	Not applicable	Unclarified: not anticipated	
				ENVIRONMENTAL HAZA	ARD STATEMEN	TS		
H400	Very toxic to aquatic life	1	10000	If cumulative/additive >1% classified under H400 (Category 1 Acute Aquatic Toxicity); pending further assessment	114.10	Further assessment not necessary	No	
H401	Toxic to aquatic life	25	250000	If modified cumulative/additive >25% classified under H401 (Category 2 Acute Aquatic Toxicity); pending further assessment	1141.00	Further assessment not necessary	No	

Hazard Statement Code	Hazard Statement	Generic Cut- Off Value (%)	Generic Cut- Off Value (ppm)	Generic Cut-Off Value and Test Comments	Assessment Concentration (ppm)	Outcome(s) of Further Testing	Hazardous (Yes / No)	Additional Comments
H402	Harmful to aquatic life	25	250000	If modified cumulative/additive >25% classified under H402 (Category 3 Acute Aquatic Toxicity); pending further assessment	11410.00	Further assessment not necessary	No	
H410	Very toxic to aquatic life with long lasting effects	1	10000	If cumulative/additive >1% classified under H410 (Category 1 Chronic Aquatic Toxicity); pending further assessment	114.10	Further assessment not necessary	No	
H411	Toxic to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H411 (Category 2 Chronic Aquatic Toxicity); pending further assessment	1141.00	Further assessment not necessary	No	
H412	Harmful to aquatic life with long lasting effects	25	250000	If modified cumulative/additive >25% classified under H412 (Category 3 Chronic Aquatic Toxicity); pending further assessment	11442.40	Further assessment not necessary	No	
H413	May cause long lasting harmful effects to aquatic life	25	250000	If modified cumulative/additive >25% classified under H413 (Category 4 Chronic Aquatic Toxicity); pending further assessment	164.20	Further assessment not necessary	No	
H420	Harms public health and the environment by destroying ozone in the upper atmosphere	0.1	1000	If individual substance >0.1% classified under H420 (Category 1). Substances based on Annexes to the Montreal Protocol.	No substances identified	Not applicable	No	
Assumptions	and Comments							

1. Acute Toxicity Estimates (ATE) have not been derived from LD50 data or conversion factors presented in SANS 10234; screening classification has been based on generic cut-off values. Where more detailed assessment is recommended, appropriate LD50 should be sourced based on current available data.

2. Ecotoxicity for Category 1 Acute and Chronic Hazards have assumed 1% threshold and additive compounds rather than utilisation of Weighting Factor/s presented in SANS 10234. Where more detailed assessment is recommended, this should follow the mixture-specific principles defined in SANS 10234.

3. Classification does not include European Union (EU), or other territory-specific, Hazard Statement Codes that may be applicable outside of the Republic of South Africa.

4. Only where data is presented, or where laboratory analysis has resulted in positive identification of substances (i.e. above laboratory limits of detection), have the applicable Hazard Statement Codes been appraised (i.e. substances determined to be at concentrations less than laboratory limits of detection have been assumed to be absent).

5. Unless exact speciation has been established through detailed analysis, classification has been based on reasonable assumptions of substances most-likely present based on expected behaviour within the material. It is recognised that this may not be applicable in all instances and, for clarity, a list of the individual substances appraised where assumptions have been made are listed below.

6. Where laboratory analysis has reported concentrations on a dry weight basis these have been converted to take account of sample moisture content using the formula:

Wet Weight Concentration = Dry Weight Concentration x ((100 - % moisture content)/100).

7. Where assessment has been undertaken on liquids, it has been assumed that 1-litre (volume) is equivalent to 1-kg (mass).

8. For additional details in respect of the individual substances that may render any given material type as hazardous, reference should be made to the appropriate Safety Data Sheet (SDS) which takes account of this classification or, if an SDS has not been prepared, the appropriate report relevant for this classification.

9. To the best of our knowledge, the information contained herein is accurate; however, WSP assumes no liability whatsoever for its accuracy or completeness. The classification of any material, and its appropriate management, remains the responsibility of the generator. All materials may present unknown hazards. Although certain hazards are described herein, it cannot be guaranteed that these are the only hazards that exist, or that these have been recognised in full.

List of Assumed Substances, where necessary

Antimony, Arsenic, Barium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Vanadium, Zinc,