



Seriti Power (Pty) Ltd

WASTE CLASSIFICATION AND ASSESSMENT

New Largo Colliery



EXECUTIVE SUMMARY

WSP Africa Group Pty (Ltd) (WSP) was contracted by Seriti Coal (Pty) Ltd (New Largo Coal) to undertake a waste classification and assessment of the waste streams collected from the mine. A total of ten (10) samples were analysed as per the laboratory programme to classify and assess the waste streams.

Two of the samples were subsoil samples (**Table 1**) and it is noted that soils are not included in the definition of residue stockpile¹ in the Mineral and Petroleum Resources Development Act (MPRDA) and are not included in Schedule 3 (Defined Wastes) of the National Environmental Management: Waste Act (NEM: WA) and are therefore not considered as wastes. Although the data can be relevant to New Largo in their environmental planning, and in the context of proper soil management (Golder, 2020) neither a waste classification nor a waste assessment for subsoil should be presented to the regulator.

Of the ten samples, eight were overburden samples: one sample of soft overburden, and seven samples of hard overburden (**Table 1**), with different lithologies. All samples were classified as non-hazardous in terms of SANS 10234 and (GN R. 634 2013). On waste assessment (GN R. 635 2013) all the samples did not meet the full definition of Type 3 waste, as although one or more constituents exceeded the first total concentration threshold ($TC > TCT0$), as shown in **Table 2**, no constituents exceeded the first leachable concentration threshold ($LC < LCT0$) shown in **Table 3**. The overburden samples are therefore conservatively assessed as Type 3 waste per regulation 7(6) of (GN R. 635 2013) but present a leachable constituent risk similar to Type 4 waste.

Soils are not considered wastes and do not require pollution control in terms of law, rather they should be managed in terms of New Largo's Environmental Management (Golder, 2020) and Soil Management Plan (Index, 2011). Mineral residues have been subject to the same environmental law as other wastes, with the pollution control barrier design prescribed by regulation 4 of (GN R. 636, 2013), and the New Largo overburden samples would require a Class C barrier in terms of that regulation – although licenses for a less stringent barrier design have been granted in cases similar to these stockpiles, where the leachability of the samples is low risk ($LC < LCT0$).

Regulations specific to mineral residues were issued in 2015 (GN R. 632 2013) and these were amended in 2018 to require per regulation 3(5) that the pollution control measures suitable for a specific residue stockpile or residue deposit must be recommended by a competent person based on a risk analysis that is required in those regulations.

¹ any debris, discard, tailings, slimes, screening, slurry, waste rock, foundry sand, beneficiation plant waste, ash or any other product derived from or incidental to a mining operation and which is stockpiled, stored, or accumulated for potential re-use, or which is disposed of, by the holder of a mining right, mining permit or production right.

Although the Department of Water and Sanitation has continued to rely on (GN R. 636 2013) for determining the barrier design for mineral residues, the Water Tribunal recently ruled in the *Mafube* matter that there is no automatic requirement to insist on the Class C barrier in all cases and that the development of as specific regulations for mine residues demonstrates that a nuanced approach is required when it comes to dealing with waste material that requires specialist attention(Mafube 2023).

In this context, a risk-based approach is recommended for the pollution control barrier design for the New Largo stockpiles, which is the approach being taken by Seriti Power (Pty) Ltd in the matter of the Klipspruit Discard Dump Extension (Seriti 2024). Given the observed low risk from leachable constituents, a risk-based approach is likely to determine that a simpler barrier design than Class C will be satisfactory to protect the water resource from contamination.

The main findings from the waste classification and assessment are documented in **Table 1**.



Table 1 - Waste Classification and Assessment Summary

Waste Material	Classification	Assessment	Barrier/Liner	Comment
Subsoils samples				
Subsoil 1 (Sample 3)	Non-hazardous	Type 3 Triggered by concentrations of Barium and Copper.	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste
Subsoil 2 (Sample 4)	Non-hazardous	Type 3 Triggered by concentrations of Arsenic, Barium, Copper, and Lead.	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste
Soft overburden samples				
Whiteish softs (Sample 5)	Non-hazardous	Type 3 Triggered by concentrations of Arsenic, Barium, Copper, and Lead.	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste
Hard overburden samples				
Sandstone (Sample A)	Non-hazardous	Type 3 Triggered by concentrations of Arsenic, Barium, Copper, and Lead.	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste
Shale (Sample B)	Non-hazardous	Type 3 Triggered by concentrations of Arsenic, Barium, Cobalt, Copper, Manganese, Nickel, and Lead.	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste
Carbonaceous shale (Sample C)	Non-hazardous	Type 3 Triggered by concentrations of Barium and Lead	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste
Sandstone (Sample D)	Non-hazardous	Type 3 Triggered by concentrations of Arsenic, Barium and Copper.	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste
Sandstone (Sample E)	Non-hazardous	Type 3 Triggered by concentrations of Barium, Copper, and Lead.	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste
Sandstone 1 (Sample 1)	Non-hazardous	Type 3 Triggered by concentrations of Barium and Manganese.	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste
Sandstone 2 (Sample 2)	Non-hazardous	Type 3 Triggered by concentrations of Barium and Copper.	Class C	Conservatively assessed as Type 3 waste. Risk similar to Type 4 Waste

Notes: <i>BDL</i> – below detection limits ‘-’ – No data
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REFERENCES

- GN R. 632. (2015). *Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits from a Prospecting, Mining, Exploration or Production Operation*. Issued under: National Environmental Management: Waste Act (as revised by GN R. 990 of 2018).
- GN R. 634. (2013). *Waste Classification and Management Regulations*. Issued under: National Environmental Management: Waste Act.
- GN R. 635. (2013). *National Norms and Standards for the Assessment of Waste for Landfill Disposal*. Issued under: National Environmental Management: Waste Act.
- GN R. 636. (2013). *National Norms and Standards for Disposal of Waste to Landfill*. Issued under: National Environmental Management: Waste Act.
- Golder. (2020). *Environmental Management Programme (EMPr) for the New Largo Coal Project*. Report No: 19119420-330881-1.
- Index. (2011). *Agricultural Economic Study (ARC) for the New Largo Project and the Phola-Kusile Coal Conveyer*. Report ref: S0403-PK&NLC-ARC-01.
- Mafube Coal Mining (Pty) Ltd vs Chief Director: Water Use License Management and another, WT 03/22/MP (Water Tribunal December 4, 2023).
- Seriti Power (Pty) Ltd vs Chief Director: Water Use License Management and another, WT 04/21/MP (Water Tribunal April 9, 2024).
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