



EIA for Proposed Modified Namakwa Sands EOFS Project Residue Disposal Plan

Notes for Authorities Meeting: DHSWS

Held: Microsoft Teams, 30 July 2020 at 10h00

Action

1 Present

Name		Position / Affiliation
Ashton van Niekerk	AN	DHSWS
Rassie Nieuwoudt	RN	DHSWS
Linda Njemla	LN	DMRE ¹
Marius Vlok	MV	Tronox
Correen Le Roux	CR	Tronox
Pieter Roux	PR	Tronox
Georgia Vagis	GV	Epoch
Guy Wiid	GW	Epoch
Andrew Savvas	AS	Epoch
Matthew Law	ML	SRK Consulting
Sue Reuther	SR	SRK Consulting
Sheila Imrie	SI	SRK Consulting
Richard O'Brien	RO	SRK Consulting

2 Introduction

ML welcomed all participants. The objective of the project was to describe the project, discuss the Environmental Impact Assessment (EIA) process and timeframes and Design Report requirements, and answer any questions at this stage.

ML provided an overview of the existing mine operations at Namakwa Sands and the affected environment, which is transformed with naturally saline groundwater.

ML briefly explained the proposed project, which entails:

- Change in backfill methodology (using two Sand Tailings Facilities [STFs]) and final topography, requiring Environmental Management Programme (EMPr) Amendment; and
- Establishment of a Residue Storage Facility (RSF) and Interim overburden stockpile, requiring Waste Management License (WML) and Water Use License (WUL) Amendment.

¹ LN encountered problems connecting to the meeting and joined ~1 hour into the meeting.

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SRK has initiated an EIA process for the project, which is currently in the Scoping Phase.

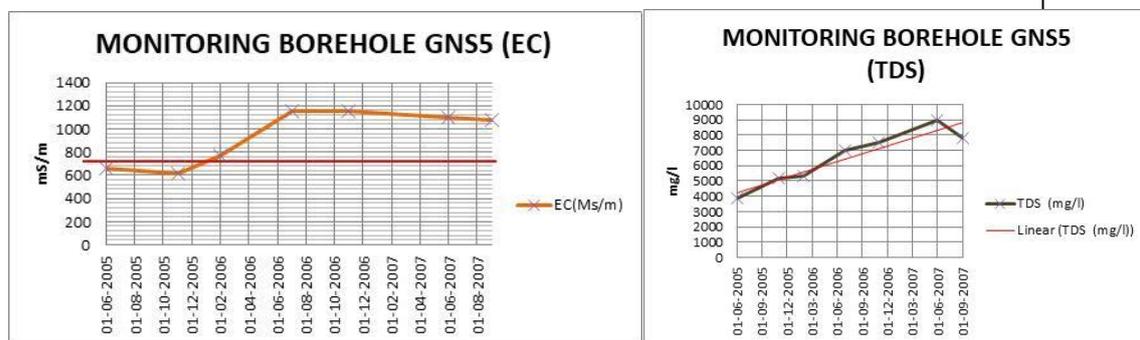
3 Key Initial Specialist Findings

3.1 Geochemical

RO presented the findings of the geochemical investigation (see presentation).

RN noted concerns that mining to 35 m and backfilling in discrete areas rather than across the pit will increase salt concentration deposited in a smaller area and referred to borehole monitoring data provided below:

If moisture of backfill is 18% then it equals 1 274 litres of seawater per m² for 4 m thick backfill. If moisture of backfill is 18% then it equals 12 740 litres of seawater per m² for 40 m thick backfill.



ML noted in response that mining is proposed to 7 m, though authorised to 35 m. The query is also addressed in the groundwater model outcomes, which follow.

AN queried whether testing shows whether trace elements can become concentrated, and whether migration of elements was considered in modelling. RO confirmed that testing determines maximum salt concentration, and leaching is considered in classification. The query is also addressed in the groundwater model outcomes, which follow.

3.2 Groundwater

SI presented the findings of the groundwater modelling (see presentation). Expected increase in groundwater salt concentration is very localised to the RSF / overburden stockpile for all scenarios. There is some mounding underneath the RSF, dropping off sharply to the west and less sharply to the east. Groundwater is 10 m below the Groot Goeraap River, making seepage into the river unlikely except for temporary seepage when disposal is very near the river. Groundwater currently contributes to the Sout River at some discrete locations, and the salinity of groundwater may increase up to 10% here, but lining did not make a difference to contribution / quality.

RN noted that previous investigations showed lower background salt concentrations than the ~1 000 mS/m that SRK uses as background, leading to concerns about baseline concentrations creep. SI noted that background salinity was based on borehole analysis, but that the environment is very variable and fractured. Nevertheless, the model plume footprint output can be interpreted as a % of source concentration, irrespective of background.

AN queried whether the model construction detail will be provided, and whether geology is factored into the model. SI confirmed that the construction detail will be provided in the groundwater report. The model is very detailed 3D model that has grown in complexity over the past 10 years; it incorporates several layers, borehole data, geohydrological information, geology etc.

Action**3.3 Design Implications**

ML summarised the key findings, and their implications for design (see presentation). The key implication is that a “no-liner” alternative is deemed feasible and motivated for by Tronox.

4 RSF Design

GV presented an overview of the design concept and studies, and preference for a “no-liner” design based on a risk-based approach (see presentation).

5 Approach to EIA / WUL Amendment Application

GV noted that design is running concurrent to EIA process, and that some detail will not yet be available for public consultation:

- RSF Pre-Feasibility / conceptual design will be available for stakeholder engagement (~Nov 2020). Epoch will provide assurance that design will be within minimum industry standards, even though detailed results are not yet available;
- RSF Feasibility design, geotechnical report and seepage and stability studies will be available at Final EIA Report stage (~Jan 2021) and submitted to authorities for consideration in decision-making; and
- PrEng signed drawings will be available in March 2021.

RN noted that this is acceptable, as the EIA is based on modelling. RN recommends that more monitoring should be undertaken during project implementation to have better data to monitor project impacts.

RN noted that mining to 35 m may take the mine floor to below the Groot Goeraap River, and even though there is not much activity DHSWS is aiming to protect the water resource.

AN would like to see assumptions and detailed information as soon as possible to ensure that the information used to model impacts and design the RSF is of appropriate quality.

RN noted the proposed approach to information release during the EIA process is acceptable for the WUL Amendment application. Dam safety specifications might need to be considered.

DHSWS will also need to determine whether previous model / impact forecasts still hold or whether there were mistakes that need to be prevented / rectified in assessment and mitigation.

LN notes that DMRE will be guided by / engage with DHSWS with regards to water-related aspects. DMRE will engage with the provincial DHSWS. RN confirmed that he and AN will provide a joint response into the WUL Amendment Application. ML summarised that the regional offices of both DMRE and DHSWS will be the primary responsible authorities with regards to the application.

CR clarified that although mining at the East Mine OFS is authorised to 35 m, mining is only planned to on average 7 m. In the East Mine RAS mining area, RAS mining to ~4 m will continue. The STFs will be in the East OFS mine void and rise ~14 m above future ground level. All work will be done in previously mined out areas.

RN laid out his understanding that the East OFS mining area had previously been mined for RAS and backfilled with RAS tailings, which now needs to be removed again. He expressed concern that this, with additional mining, could lead to a lot of

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tailings requiring a very large (40 m+ high) RSF, or that the STFs as proposed are insufficient as only single-stack backfilling is proposed.

MV clarified that previous RAS tailings (now overburden) will be stripped and placed in the RAS overburden stockpile, for use in rehabilitation. The only residue that will go to the RSF is the fine clay fraction, and the RSF is broadly comparable to other Namakwa Sands RSFs. The coarser material will go into STF 1 and STF2. CR confirmed that the material balance has been calculated and has informed the mine plan. All coarse material will be placed in the single stack backfill and the STFs; there will be no surplus material.

ML confirmed that material balance will be reported on in EIA Report. RN noted that the water balance is also important.

The meeting closed at 11h35. The meeting was recorded.

Notes taken by: Sue Reuther

Signed by:

SRK Consulting - Certified Electronic Signature

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Date: 6 August 2020

Sue Reuther
Principal Environmental Consultant