

## Issues and Responses Summary: Modified East OFS Project Residue Plan: Impact Assessment Phase

In compliance with the requirements of the EIA Regulations, 2014, the Issues and Responses Summary reflects the *issues* raised in stakeholder comments<sup>1</sup> listed in Table 1 and received by SRK on the:

1. Scoping Report (comment period from 19 June 2020 – 20 July 2020); and
2. EIA Report (comment period from 8 January 2021 – 8 February 2021).

Issues have been consolidated and responses, where required, are provided in the respective columns of the Issues and Responses Summary. Copies of all original comments received by SRK are collated and presented in the Appendices of the Final EIA Report. Responses are provided by the Environmental Assessment Practitioner (EAP), Tronox and/or specialists – unless otherwise indicated, responses are provided by the EAP based on the contents of the Scoping and EIA Reports.

Issues are grouped into the following general themes in the Issues and Responses Summary:

- A. Vegetation Clearance
- B. Ground- and Surface Water
- C. Air Quality and Noise
- D. Coastal Zone
- E. Project Description
- F. General / Technical

Written comments were received from the stakeholders listed in Table 1.

**Table 1: Stakeholders who submitted written comments**

#	Stakeholder	Affiliation	Comment received
<b>On the Scoping Report</b>			
1.	Nieuwoudt, Rassie	Department of Human Settlement, Water and Sanitation (DHSWS)	22 June 2020
2.	Adri La Meyer	Department of Environmental Affairs and Development Planning (DEA&DP)	20 July 2020
<b>On the EIA Report</b>			
1.	C. Ganten-Bein	West Coast District Municipality (WCDM) Air Quality	12 and 26 January 2021

<sup>1</sup> Comments noting minor errors in the Scoping Report (e.g. spelling errors) have not been included in the Issues and Responses Summary, but have been addressed.

#	Stakeholder	Affiliation	Comment received
2.	Adri La Meyer	Department of Environmental Affairs and Development Planning (DEA&DP)	9 February 2021
3	Acting Director: Coastal Conservation Strategies	Department of Environment Forestry and Fisheries (DEFF): Oceans & Coasts (O&C)	10 February 2021

The following stakeholders confirmed during the impact assessment phase that they would not submit comment / objections:

- Heritage Western Cape (HWC) (11 January 2021);
- Department of Transport and Public Works (DTPW) (26 January 2021); and
- WCDM Town and Regional Planning (8 February 2021).

**Issues and Responses Table: Modified East OFS Project Residue Disposal Plan**

No	Issues	Stakeholder	Scoping Phase response	Impact Assessment Phase response
<b>A. Vegetation Clearance</b>				
1.	It is common practice to strip at least the top 150 mm of topsoil prior to mining, and therefore the proposal to strip only 50 mm is questioned by DHSWS.	DHSWS	The East OFS mining project is an approved project (including the requirement to only strip the top 50 mm of topsoil in mining blocks), and therefore the volume of topsoil harvesting for the project falls outside of the Scope of the Environmental Impact Assessment (EIA).  Nevertheless, Tronox are committed to stripping as much of the topsoil / RAS material as required to ensure a sufficient, viable growth medium in rehabilitation areas.	
2.	Clear vegetation only where necessary and retain as much vegetation as possible so that the area can continue to function and offer services in the best sustainable way possible.	DEFF: O&C		Noted. Vegetation clearance authorised as part of this project will be restricted to the project footprinted shown in the EIA Report.
<b>B. Ground- and Surface Water</b>				
3.	Concern about potential impacts from groundwater contamination from (salt) seawater infiltration at the East Mine	DHSWS	Potential impacts from groundwater contamination will be considered and assessed in the EIA Phase (refer to Section 6.1 and 7.4 of the Scoping Report).	
4.	Noting that the water table mimics topography there is reason to believe that groundwater recharge is from rainfall – hydrogeologist to comment	DHSWS	Groundwater specialist: The regional water table is indeed a 'subdued replica' of topography and the vast majority of recharge is from rainfall.  Seepage below fine residue dams may result in localised groundwater mounds. Possible impacts thereof will be assessed in the EIA Phase.	
5.	The DEA&DP Pollution and Chemicals Management Directorate recommends the lining of the two proposed sand tailing facilities (STs) to prevent the leaching of any pollutants into the groundwater, and an investigation into a leachate management system.  These design considerations must be reported on in the EIA Phase of the application.	DEA&DP	Tronox: While the impacts of the modified sand tailings disposal plan (including STFs) will be assessed and considered in the EIA Phase (and Tronox acknowledges its Duty of Care in terms of NEMA), the return of sand tailings to the East Mine pit is an ongoing waste management activity which predates the NEM:WA. As such the transitional arrangements in GN 921 of 29 November 2013, Section 7(1) apply: "a person who lawfully conducts a waste management activity listed in this Schedule on the date of the coming into effect of this Notice", such a person "may continue with the waste management activity until such time that the Minister by notice in a Gazette calls upon such a person to apply for	

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			a waste management licence." Therefore, and since the return of sand tailings to the (unlined) pit is an ongoing legal activity which does not require a Waste Management Licence in terms of NEM:WA, the alternative to line the STFs is not being considered by Tronox.	
6.	<p>The DEA&amp;DP Pollution and Chemicals Management Directorate recommends the lining of the RSF to prevent the leaching of any pollutants into the groundwater, and an investigation into a leachate management system.</p> <p>These design considerations must be reported on in the EIA Phase of the application.</p>	DEA&DP	<p>Preliminary investigations indicate that fines residue (to be deposited in the Residue Storage Facility [RSF]) can be classified as a Type 3 Waste (because of seawater processing). Type 3 Waste disposal facilities typically require lining in the absence of a risk-based motivation to design.</p> <p>However, groundwater in the region has high baseline salinity and there are few known receptors. To assess the pollution potential of disposing the fines residue and to guide a risk based approach to the design of the RSF, Tronox, their appointed design consultants and SRK hydrogeologists are currently considering and comparing the financial, technical and environmental implications (risks) of the following liner design alternatives:</p> <ul style="list-style-type: none"> <li>• A liner with the specifications of a Class C disposal facility, i.e. base preparation layer and installation of a high-density polyethylene (HDPE) liner;</li> <li>• A liner with the specifications of a Class D disposal facility, i.e. an engineered base compaction layer; and</li> <li>• No liner (as per the design of RSF1 – RSF5 at the East Mine), possibly with mitigation (e.g. groundwater interception boreholes).</li> </ul> <p>Based on financial viability assessments, Tronox has advised that it is not financially feasible to install a geosynthetic (Class C) liner at the RSF, and this alternative is therefore screened out by Tronox (but is nevertheless being analysed to inform the risk based assessment).</p>	Please see subsequent DEA&DP comment in Item 9, which addresses this aspect.
7.	Groundwater monitoring should be incorporated into the conceptual design of the RSF.	DEA&DP	Required changes to the existing Groundwater Monitoring Programme at the Mine will be reported in the Groundwater Impact Assessment and Design Report.	Please see subsequent DEA&DP comment in Item 8, which addresses this aspect.

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8.	3.2. This Directorate agrees with the Groundwater Specialist Study dated December 2020 compiled by SRK Consulting regarding the addition of three new boreholes and the regular monitoring thereof, along with the continuation of monitoring of all other existing boreholes within the mining area.	DEA&DP Directorate: Waste Management		Noted.  The requirement to add an additional three boreholes to the groundwater monitoring network at Namakwa Sands is included in the EMPr.
9.	4.1. This Directorate has reviewed the Groundwater Specialist Study and acknowledges the groundwater modelling scenarios for potential seepage impacts from the proposed residue storage facility and sand tailings facilities. Given the findings of the groundwater impact assessment, this Directorate has no further comment on the proposed changes to existing authorisations.	DEA&DP Directorate: Pollution and Chemicals Management		Noted.
<b>C. Air Quality and Noise</b>				
10.	The Environmental Management Programme to be submitted with the Draft EIA Report must provide management measures to prevent or mitigate noise and air quality impacts.	DEA&DP	Noted.	
11.	The development must comply with National Environmental Management: Air Quality Act No. 39 of 2004 ("NEM: AQA")	DEA&DP	The project does not require licencing in terms of the NEM:AQA.  Air quality will continue to be monitored and reported on at the Mine boundary in compliance with existing plans and NEM:AQA.	
12.	The development must comply with National Dust Control Regulations (GN No. R. 827) of 1 November 2013, promulgated in terms of the NEM: AQA	DEA&DP	The project does not require approval in terms of the National Dust Control Regulations; however, the EMPr will be compliant with these Regulations.	
13.	The development must comply with the Western Cape Noise Control Regulations (Provincial Notice 200/2013) of 20 June 2013	DEA&DP	Refer to Section 2.1.9 of the Final Scoping Report. In terms of the Noise Control Regulations, Tronox may not cause a disturbing or nuisance causing noise. Noting the rural nature of the area, remote location of the Mine, and absence of sensitive (or any urban) receptors (Namakwa Sands has never received a noise complaint), the Noise Control	

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			Regulations have an extremely limited applicability to operations at the Mine.	
14.	<p>The WCDM has no objection to the proposed activities on condition that:</p> <ol style="list-style-type: none"> <li>1. Dust suppression measures currently implemented are maintained to prevent the generation and spread of particulate matter into the receiving environment.</li> <li>2. Dust suppression measures mentioned within the environmental management plan to be implemented and maintained prior and during the proposed activities, as to prevent the spread of fugitive dust into the receiving environment.</li> <li>3. Dust suppression measures recommended by the consultant to be implemented if required to further contain the generation of fugitive dust.</li> <li>4. A copy of the updated Environmental Management Plan (EMP) to be submitted to this office, containing all the mentioned mitigation measures.</li> <li>5. As mentioned during the virtual meeting, rehabilitation of mined areas will take place concurrently with the proposed activities and sea water will be used for dust suppression.</li> </ol>	WCDM: Air Quality		Noted.
<b>D. Coastal Zone</b>				
15.	2.3. [...] The applicant is reminded to implement all avoidance and mitigation measures to ensure that the proposed activities do not adversely impact the CPZ.	DEA&DP Directorate: Biodiversity and Coastal Management		Noted.
16.	2.8. This Directorate believes that the project proposal is not consistent with section 13 of the NEM: ICMA which aims to provide adequate access to coastal public property. This objection	DEA&DP Directorate: Biodiversity		It is correctly noted that the application is for activities that support an approved project, viz the mining of EOFS

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	notwithstanding, this Directorate notes that the East Orange Feldspathic Sand ("OFS") project has already been granted an environmental authorisation with an approved EMPr to mine the deeper OFS resource to a depth of ~35m throughout the East Mine boundary.	and Coastal Management		resource at the Tronox Namakwa Sands mine, an existing mine. Proposed activities that may impact coastal access relate to the upgrade of seawater intake infrastructure, notably the construction of pipeline crossings of two public roads (Soutpan Road and coastal road). Access disturbance at these roads is not expected to exceed one day, during construction. The project will not restrict coastal access in any other way.
17.	Construction activities with potential to affect public access to the coast should be scheduled outside of peak season.	DEFF: O&C		Mitigation measure J5 has been amended to take account of this comment.
18.	Construction should be scheduled outside of heavy rain and stormy season. Historical data must be used to determine suitable periods.	DEFF: O&C		This mitigation measure is not applicable as the region only receives very low rainfall (and it is not possible to predict extreme rainfall events).
19.	Construction should be scheduled outside of breeding and migration periods. Historical data must be used to determine breeding and migration seasons.	DEFF: O&C		This mitigation measure is not practical or necessary as the expansion of coastal infrastructure considered in the current application will be located within the existing seawater intake boundary, and therefore no faunal species are expected to occur here. Furthermore, it is not clear which animals breeding and migration periods are being referred to.
20.	Avoid areas that have been identified as sensitive and offer important functions, such as habitat, breeding areas and migration routes.	DEFF: O&C		The following mitigation measure (A3) is already included in the EMPr and addresses this comment: "Designate areas beyond the boundary of the site and all sensitive areas (i.e. the coastal ecological corridor [other than when works in this area are required], the Hardpan and Groot Goeraap River) as No-go areas for all personnel on site. No vehicles, machinery, materials or people shall be permitted in the No-go areas at any time without the express permission of the SHE Leader and / or the EP."
21.	Vehicles and machinery must be maintained and refuelled outside of the coastal zone.	DEFF: O&C		Mitigation measures E1 – E5 address the management of hydrocarbons and vehicles in the coastal zone and address this comment.
22.	<ul style="list-style-type: none"> <li>The applicant must take into account, adhere to and implement the relevant</li> </ul>	DEFF: O&C		Noted.

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	<p>section of the National “ICM Act” applicable to this project.</p> <ul style="list-style-type: none"> <li>To ensure that pollution of the marine ecosystem and seawater contamination is minimized, we recommend that only work necessary must be undertaken within the CPP.</li> <li>No camping site should be planned and established within the CPP.</li> <li>Design and technology should be selected to ensure long lifespan and little maintenance requirements in the CPP.</li> <li>Kindly note that the activity may not commence prior to an environmental authorisation being granted by the CA.</li> </ul>			
<b>E. Project Description</b>				
23.	<p>Provide:</p> <ul style="list-style-type: none"> <li>Volume of tailings backfill (in pit and STFs);</li> <li>Anticipated volume of seawater infiltration (vs recovery) from tailings backfill; and</li> <li>Anticipated volume of salt deposition in East Mine pit as a result of the project (in tonnes).</li> </ul>	DHSWS	The Groundwater Impact Assessment report will provide the anticipated volume of seawater infiltration from tailings backfill, as well as the anticipated volume of salt deposition in the East Mine pit as a result of the project. This will be in the form of a water balance and a salt balance (over time).	Please see Sections 3.10.5 and 6.4.2.1 of the EIA Report, and the groundwater impact assessment appended to the EIA Report.
24.	The conclusion that penstock intakes are not viable at the RSF is questioned – DWS suggests that the topography at the site allows for this technology and requests more investigation in this regard / motivation to not use this technology	DHSWS	<p>Design Engineer: A penstock is a vertical tower, most commonly positioned in the centre of an RSF, which decants supernatant water by feeding it (via gravity) into a horizontal outlet pipeline, which conveys the decanted water to a return water structure.</p> <p>Given that the selected site is in essence a depression (bowl shaped), the lowest point in the RSF will be in the middle of the depression. There is a more than 25 m difference in elevation between the lowest point (centre of the depression) and the highest point (edge of the RSF). Therefore, the outlet would need to be installed more than 25 m underground in</p>	



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			<p>order to naturally drain and daylight into a return water structure.</p> <p>Based on the topography of the site, the outlet pipe would need to extend more than 300 m beyond the downstream toe / edge of the RSF to reach an area with lower elevation than the centre of the RSF / depression.</p> <p>This option would require massive earthworks and be extremely costly and is not considered feasible or appropriate to manage return water.</p>	
25.	Provide the permeability of fine residue in the RSF	DHSWS	This will be provided in the Design Report.	Please see the Design Report appended as Appendix C to the EIA Report.
26.	The proposal to construct internal and external RSF walls at an angle of 1:2 requires technical motivation (or must be reconsidered)	DHSWS	Design Engineer: A geotechnical investigation on the in-situ soil as well as the two tailings streams will be undertaken to ascertain <i>inter alia</i> the soil properties and strength parameters. These results will inform a Stability Analysis of the RSF to ensure that the facility meets all requirements. The side slope configurations will be confirmed through this process and the outer slopes will be increased to 1:5 for closure and rehabilitation.	Please see the Design Report appended to the EIA Report.
<b>F. General / Technical</b>				
27.	Specialists must recommend monitoring programmes to confirm the level of impacts to the environment	DHSWS	This will be provided in the EIA Report.	Monitoring measures are provided in the EIA Report and incorporated into the EMPr.
28.	A copy of the Screening Report generated from the National Screening Tool must be included in the Final Scoping Report to be submitted to the competent authority.	DEA&DP	Attached as Appendix H	
29.	A copy of the agreed public participation plan must be included in the Final Scoping Report and the Draft EIA Report.	DEA&DP	The public participation plan, which was accepted by DMRE, was included in Section 5.2.1 of the Scoping Report.	
30.	<p>The Draft Scoping Report states that the EA for the East OFS project authorised the development of three smaller residue storage facilities ("RSFs").</p> <p>Please note that if the EA (assumingly granted by this Directorate during March 2012) is still</p>	DEA&DP	At the time of the original application for EA, mining waste management was governed by the MPRDA, and therefore fell outside of the scope of the EA for the project (it was nevertheless reported on in the Basic Assessment Report upon which DEA&DP based its decision to grant EA for the project). This is now more clearly stated in the Final Scoping	

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	valid, then an amendment to the EA would be required for the exclusion of the three smaller RSFs, following the granting of an EA for a single RSF by the relevant competent authority.		Report. As such, an amendment to the EA for the project is not necessary.	
31.	The response of Heritage Western Cape ("HWC") on the Notification of Intent to Develop submitted in terms of section 38 of the National Heritage Act, 1999 (Act No. 25 of 1999), must be included in the FSR.	DEA&DP	The response to the NID (requiring no further action from the applicant) is included as Appendix G to the Final Scoping Report.	The response to the NID (requiring no further action from the applicant) is included as Appendix B to the EIA Report.
32.	Proof of the public participation process (PPP) undertaken and copies of all comments provided on the DSR must be included in the FSR to be submitted to the competent authority.	DEA&DP	Refer to Appendices D, E and F of the Final Scoping Report.	
33.	The CA must state clearly within the condition of the EA that no Organ of State will be held liable for the maintenance and up keep of this project.	DEFF: O&C		Noted.
34.	With all the mentioned recommendations and conditions, the Branch: O&C has no objections to the Environmental Impact Assessment Report for the proposed Modified Namakwa Sands E OFS Project Residue Disposal Plan, Matzikama Local Municipality in the Western Cape.	DEFF: O&C		Noted.
35.	1.1. Please be reminded that all specialist reports must contain a curriculum vitae and a signed declaration of the relevant specialist that conducted the specialist report. This must be included in the Final EIA Report to be submitted to the competent authority.	DEA&DP Directorate: Development Management (Region 1)		The specialist CVs and Declarations of Independence are included in the Final EIA Report submitted to DMRE.
36.	1.2. A copy of the agreed public participation plan and proof of the public participation process conducted must be included in the Final EIA Report to be submitted to the competent authority.	DEA&DP Directorate: Development Management (Region 1)		DMRE did not raise any concerns on the Public Participation Plan submitted by SRK on 6 January 2021. Information relating to the public participation process on the EIA Report is included in Section 5 of the Final EIA Report.

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37.	1.3. The comments and response report must be updated to include the comments received on the Draft EIA Report and the EAP's response to those comments.	DEA&DP Directorate: Development Management (Region 1)		The issues and responses report (this document) has been updated to include comments received on the draft EIA Report.
38.	1.4. The EMPr must be amended to include appropriate fines for transgressions. Furthermore, the EMPr must include the recommendations and mitigation measures of all the specialists.	DEA&DP Directorate: Development Management (Region 1)		SRK has not specified fines for transgressions and fines are not specified for transgressions in Tronox's existing EMPs governing mining activities. If required in future, this could be considered by DMRE. The EMPr includes recommendations and mitigation measures from specialist studies – DEA&DP confirmed that this is a generic comment.
39.	3.1. Kindly provide clarity regarding the statement on page 7 of the Waste Classification Study dated June 2020 compiled by SRK Consulting which states that "The TCT0 thresholds have been obtained from the South African Norms and Standards for the management of Contaminated Land Soil Screening Values (SSV1) for the protection of potable water resources." The values for TCT0 in Table 5-4 of the Waste Classification Study are the same as the values prescribed in the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) National Norms and Standards for the assessment of waste for landfill disposal published in Government Notice No. R 635 dated 23 August 2013. Please clarify what values were used to assess the thresholds?	DEA&DP Directorate: Waste Management		The TCT0 thresholds are quoted from the Table 6 of the National Norms and Standards for the Assessment of Waste for Disposal to Landfill (GN 635 of 2013). As referenced in the notes accompanying Table 6 (page 27 of GN635 of 2013) "Where available, the TCT0 limits for have been obtained from the SA Soil Screening Values for the protection of water resources.....". The TCT0 values quoted in Table 5-4 of SRK Waste Classification Report are from Table 6 of the National Norms and Standards for the Assessment of Waste for Disposal to Landfill (GN 635 of 2013).
40.	5.1. This Directorate previously reviewed the DSR and provided comments thereto for consideration by the applicant and EAP. After reviewing the Draft EIA Report and Draft EMPr, this Directorate notes that the applicant has addressed all previous comments raised, by including it in the EMPr. The proposed actions/measures mentioned in the Draft EMPr	DEA&DP Directorate: Air Quality Management		Noted.

No	Issues	Stakeholder	Scoping Phase response	Impact Assessment Phase response
	should be instituted and maintained in the daily operational processes.			