Case # 1063

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

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From: Directorate: Mineral Regulation: Northern Cape **Date:** 10 May 2012
Enquiries: Mr. H.D Mashau Email:Humbulani.Mashau @dmr.gov.za
Ref: NC 30/5/1/1/2/3/2/1/10331PR EM

The Director
South African Heritage Resources Agency
PO Box 4637
CAPE TOWN
8000

Attention: Nonofho Ndobochani

CONSULTATION IN TERMS OF SECTION 40 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT 2002, (ACT 28 OF 2002) FOR THE APPROVAL OF AN ENVIRONMENTAL MANAGEMENT PLAN FOR PROSPECTING RIGHT IN RESPECT OF MANGANESE AND SUGILLITE ON PORTIONS 1 AND 2 OF THE FARM CURTIS NO.470, SITUATED IN MAGISTERIAL DISTRICT OF KURUMAN, NORTHERN CAPE.

APPLICANT: TANTOBEX (PTY) LTD.

Attached herewith, please find a copy of an EMP received from the above-mentioned applicant, for your comments.

It would be appreciated if you could forward any comments or requirements your Department may have to this office and to the applicant before **10 July 2012** as required by the Act.

Consultation in this regard has also been initiated with other relevant State Departments. In an attempt to expedite the consultation process please contact this office to make arrangements for a site inspection or for any other enquiries with regard to this application.

Your co-operation will be appreciated.

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REGIONAL MANAGER: MINERAL REGULATION
NORTHERN CAPE REGION

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: TANTOBEX (PTY) LTD

REFERENCE NUMBER: NC 30/5/1/1/2/10331 PR

ENVIRONMENTAL MANAGEMENT PLAN

SUBMITTED
IN TERMS OF SECTION 39 AND OF REGULATION 52 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002, (ACT NO. 28 OF 2002) (the Act)

STANDARD DIRECTIVE

Applicants for prospecting rights or mining permits, are herewith, in terms of the provisions of Section 29 (a) and in terms of section 39 (5) of the Mineral and Petroleum Resources Development Act, directed to submit an Environmental Management Plan strictly in accordance with the subject headings herein, and to compile the content according to all the sub items to the said subject headings referred to in the guideline published on the Departments website, within 60 days of notification by the Regional Manager of the acceptance of such application. This document comprises the standard format provided by the Department in terms of Regulation 52 (2), and the standard environmental management plan which was in use prior to the year 2011, will no longer be accepted.

IDENTIFICATION OF THE APPLICATION IN RESPECT OF WHICH THE ENVIRONMENTAL MANAGEMENT PLAN IS SUBMITTED.

ITEM	COMPANY CONTACT DETAILS
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Fax no:	(031) 332 6766
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ITEM	CONSULTANT CONTACT DETAILS (If applicable)
Name	Ezra Nkosi
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1 REGULATION 52 (2): Description of the environment likely to be affected by the proposed prospecting or mining operation

1.1 The environment on site relative to the environment in the surrounding area.

Climate: Due to the location and nature of the prospecting process, there are no extreme weather conditions like extremely high rainfall events, wind, temperatures, etc that need to be considered during the prospecting operation and rehabilitation of the prospected and disturbed areas.

Regional setting: The proposed prospecting area is located in a typical Northern Cape Highveld summer rainfall area with cold winters and moderate to hot summers.

Rainfall: The calculated average monthly rainfall precipitation ranges from 3- 154,5mm. The average year total rainfall was calculated at 621,60mm and a precipitation total of >1mm occurred on average 80 days per annum.

Temperature: The mean annual daily maximum temperature is calculated as 24.21 degrees Celsius whilst the highest daily maximum temperature was 33.2 degrees Celsius in January 2009. The mean annual daily minimum temperature is calculated as 14.21 degrees Celsius whilst the lowest daily minimum temperature was -6.9 degrees Celsius in June 2009.

Extreme weather condition: frost occurred on average 71 days per annum, hail and periods of drought occur. The highest recorded wind speed was measured at 41.5m/s.

Topography: The general physical characteristics of the area are determined by the different geological formations. The general area is almost flat, at an average elevation of around 1180 m.a.s.l., with a very gentle slope to the north-west. The elevation range on the site (the whole prospecting right applied for) is from 1206 m.a.s.l. in the south east to 1160 m.a.s.l. in the north-west. The drainage system is not well defined, with only ephemeral streams present and very small farm dams present.

Land use: The land-use on the proposed prospecting area and the surrounding area are mainly for extensive grazing for cattle and sheep as well as other agricultural activities. The closure objectives will be to return the land to farming use.

Vegetation:. The natural vegetation of the area is described as Kimberley Thornveld (code Svk 4 – Savanna Biome) and is classed as Least Threatened although only 2% of the extent of this type is statutorily conserved. This natural vegetation is significantly transformed on the property by commercial farming (grazing). The important taxa of this vegetation type are described below:

Tall Tree: *Acacia erioloba*

Small Trees: *Acacia karroo*, A. *mellifera* subsp. *detinens*, A *tortilis* subsp. *heteracantha*, *Rhus lancea.*

Tall Shrubs: *Tarchonanthus camphoratus*, *Diospyros pallens, Ehretia rigida* subsp. *rigida, Euclea crispa* subsp. *ovata, Grewia flava, Lycium arenicola, L. hirsutum, Rhus tridactyla.*

Low Shrubs: *Acacia hebeclada* subsp. *hebeclada, Anthospermum rigidum* subsp. *pumilum, Helichrysum zeyheri, Hermannia comosa, Lycium pilifolium, Melolobium microphyllum, Pavonia burchellii, Peliostomum leucorrhizum, Plinthus sericeus, Wahlenbergia nodosa.*
Succulent Shrubs: *Aloe hereroensis* var. *hereroensis, Lycium cinereum.*
Graminoids: *Eragrostis lehmanniana, Aristida canescens, A. congesta, A. mollissima* subsp. *argentea, Cymbopogon pospischilii, Digitaria argyrograpta, D. eriantha* subsp. *eriantha, Enneapogon cenchroides, E. scoparius, Eragrostis rigidior, Heteropogon contortus, Themeda triandra.*
Herbs: *Barleria macrostegia, Dicoma schinzii, Harpagophytum procumbens* subsp. *procumbens, Helichrysum cerastioides, Hermbstaedtia odorata, Hibiscus marlothianus, Jamesbrittenia aurantiaca, Lippia scaberrima, Osteospermum muricatum, Vahlia capensis* subsp. *vulgaris.*
Succulent Herbs: *Aloe grandidentata, Piaranthus decipiens.*
Source: Mucina, L. and Rutherford, M.C. (eds) 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

Animal life: In its original natural state, the area would have supported a wide variety of game, but due to the land use of commercial farming (grazing) and nearby mining activities, it now only hosts some buck (kudu have been reported), small mammals, reptiles and birds suited to this environment, in addition to cattle and sheep. The following Red Data Birds in the Vulnerable category are listed for the relevant quarter degree sheets (2824BD & DB) as a whole and aside from a specific report of Blue Cranes being present (nesting), it is not known whether these species would be expected on the farm Dingle 565.
African Whitebacked Vulture
Lappetfaced Vulture
Tawny Eagle
Martial Eagle
African Marsh Harrier
Lesser Kestrel
Blue Crane
Kori Bustard
Source: Barnes, K.N. (ed.) 2000. The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland. Birdlife South Africa, Johannesburg.

Surface water: There is no natural river, dam, wetland, streams, etc within the proposed prospecting area. Surface water will only be required for dust suppression. Storm water will be controlled and managed.

Ground water: Ground water on the farm was not analysed to determine the water quality in the area because of the insignificant impact that the prospecting activities may have on the water quality and quantity. Groundwater is not extensively been used in the area and is primarily used for stock watering and domestic purposes at farmhouses. The ground water quality is in general good and complies with the required water quality guidelines for domestic use.

Air quality: The air quality is essentially unpolluted but is can be disturbed by the movement of heavy earthmoving equipment which can generate dust and cause nuisance and health implication to workers and

people living nearby. The prospecting operation will ensure that the dust suppression method is implemented.

Noise: The surrounding areas are characterized by agricultural setting in which some equipment such as tractors and trucks operate. The proposed operation will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulation as well as other applicable legislations regarding noise control. Employees will be supplied with ear plugs. All mining vehicles will be equipped with silencers and maintained in a road worthy condition.

***Sites of archaeological and cultural interests*:** no sites of archaeological or cultural interest were identified by DEAT (2001) or the South African Heritage Resources Agency: Free State (SAHRA).

Protected Areas: There are no protected areas near the site, nor within 10 km of it. The site is not within any threatened ecosystem as per government notice 1002 of 2011.
Sources: ENPAT database, Free State and Northern Cape. Government Gazette no 34809, 9 December 2011.

1.2 The specific environmental features on the site applied for which may require protection, remediation, management or avoidance.

Due to the fairly dry nature of the area and the existing land use, the vegetation, soil and groundwater are the main elements that need protection in general. The environmental assessment indicated that there are no specific environmental features which will require special treatment. However, all farm activities from agricultural to farm houses will not be impacted by prospecting activities. In particular, damage to small farm dams and water boreholes (wind pumps) will be avoided. Damage to farmhouses and other structures should also be avoided, as should damage to fences, gates, farm roads or tracks. All potential impacts were identified and mitigation measures are in place, i.e protection, remediation, management and avoidance. There will be no prospecting activities conducted at a horizontal distance of 100m from the infrastructure and water bodies. Noise will be minimised to prevent disturbance to the farming activities and the neighbouring farmers as well as other interested and affected parties.

1.3 Map showing the spatial locality of all environmental, cultural/heritage and current land use features identified on site.

Please refer to the Regulation 2.2 map or attached annexure <u>A</u> at the end of the EMP.

1.4 Confirmation that the description of the environment has been compiled with the participation of the community, the landowner and interested and affected parties,

The farm owners have been notified and engagements for consultation process are still underway. As observed during the site visit and with consultation with other people found around the area, the farm is used for agricultural purposes. You can also refer to the report of consultation with the communities and interested and affected parties, attached as annexure *B*

2 REGULATION 52 (2) (b): Assessment of the potential impacts of the proposed prospecting or mining operation on the environment, socio-economic conditions and cultural heritage.

2.1 Description of the proposed prospecting or mining operation.

2.1.1 The main prospecting activities (e.g. access roads, topsoil storage sites and any other basic prospecting design features)

Prospecting activities will be conducted in a phased approach, with each successive step entirely dependent on obtaining successful results from the initial phases, inclusive of large areas of iron resources of good quality to warrant further exploration. The proposed exploration is also dependent on there being no fatal flaws encountered in the investigations which might impact on the economics of the project The prospecting phases with the duration of each phase indicated are:

Phase I;
This phase will take a period of six (6) months and will involve:

- The consultation with land/surface owners concerning legal requirements, access roads, availability of water and housing as well as site establishment. The approximate period panned for this engagement is two (2) months.
- Geological mapping to verify that the Karoo Sequence according to the published geological map terminates to the south and east of the farm is wrong.
- Should it appear that the Karoo sequence extend onto the farm covered in this application, the first objective would be to verify the total area covered by potential iron bearing horizons. If the prospective sequence does not extend onto the farms, the prospecting right will be relinquished with no further work conducted and a section 43 of the MPRDA closure application will be lodged. This whole exercise does not pose or have any negative environmental impacts.

- This will be the first phase of reconnaissance drilling-reverse circulation percussion through potential iron horizons into basement.
- First pass evaluation of iron seam thickness and petrographic evaluation to establish iron rank.
- Tantobex (Pty) Ltd plans to drill a number of boreholes along the strike totalling about 1000 meters in area where iron potential exist.
- Down the hole, geophysical surveys in holes that intercept iron seams. Geophysical logs could include calliper, gamma, density, sonic and acoustic televiewer if warranted.
- Calculation of potential indicated resource.

Phase II;
Prospecting activities will be conducted for a period of eight (8) months and will involve:

- Infill drilling by diamond coring at HQ size.
- Down the holes geophysical surveys in holes that intercept iron seams. Geophysical logs could include calliper, gamma, density, sonic and acoustic televiewer if warranted.
- Detailed proximate and ultimate analysis (C,H,N,O) on potential economic iron seams to establish yields, ash content, calorific values and other physical properties for a variety of size fractions. Potential product groups are to be defined on the iron rank as established during phase 1 drilling. All analysis will be within the guidelines of the Samrec Code.
- Calculation of potential indicated resources.

Concurrent rehabilitation will be exercised to ensure that the completed borehole will be closed and rehabilitated before a new pit is opened . There will be no borehole site which will be left unattended as a result of practicing concurrent rehabilitation and this will then minimise the environmental impacts and the final closure liabilities.

Phase III ;
This phase will be carried out over a period of nine (9) months and will involve:

- Delineating drilling in areas of successful iron development within the guidelines of the Samrec code to establish measured resources in target area.
- Down the holes geophysical surveys in holes that intercept iron seams. Geophysical logs could include calliper, gamma, density, sonic and acoustic televiewer if warranted.
- Detailed proximate and ultimate analysis to further refine potential product groups.

- Geotechnical logging of core to assist in potential plan.
- Initial resource model and mine plan to initiate pre-feasibility study.

Phase IV & V;
This phase will be carried out over a period of Twenty two (22) months and will involve:

- Prefeasibility study including further drilling to refine resources and establish measured reserves.
- Further geotechnical work to assist in mine planning.
- Infrastructure studies including water, transport, beneficiation of products, mine plan and other applicable infrastructure requirements.
- Investigation of potential market avenues
- Preparation and lodgement of a mining right application at the DMR in terms of section 22 of the MPRDA, 2002.

Existing farm **access roads** will be used but should there be a need to construct new roads that will be done after necessary consultation with the land owner or legal occupier. The access roads will be maintained and kept in good conditions to prevent degradation and will be sprayed with water should there be any dust problems.

As indicated above, the prospecting activities will involve drilling and no diggings or trenching will be done except of small sump trenches or pits which will be opened per drilling site or borehole. This results in removal of minor topsoil and in some cases subsoil.

Topsoil will be removed from all areas where drilling of boreholes will occur. All available topsoil will be removed prior to the commencement of any operations. The topsoil removed, will be stored on the high ground side of the prospecting area next to the excavations and outside the 1:50 flood level within the boundaries of the prospecting area. Topsoil will be kept separate from overburden and will not be used for building or maintenance of access roads. The topsoil stored in will be adequately protected from being blown away or being eroded.

There will be no permanent **storage of grease oil, diesel or hydraulic fluid** within the prospecting premises. The land owner will be consulted regarding the storage of the above should there be a need to store on site. Due to the small scale of the prospecting process, little or no spillages of oil, grease,

diesel, etc are expected to occur on site. However, spillages can be of an accidental nature and in case of accidental spillages of above substances, the following measures will be taken:

- Any spillages which may occur will be investigated and immediate action will be taken. In the event of significant spills (>35 litres) of any hazardous substance, this will be recorded and reported to the environmental personnel, the Department of Water Affairs, DMR, the Department of Environmental Affairs and any other relevant authorities.
- Depending on the nature of and extent of the spill, contaminated soil will be removed and disposed of in a waste deposit receptacle for final disposal at a licensed facility.
- Excavation of contaminated soil will involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site.
- Where relevant, the polluted soil will be treated using absorbent material as well as oil-digestive powders to the contaminated soil.
- If necessary, oil absorbent sheet or pads or similar alternatives will be attached to leaky machinery or infrastructure.
- Materials used in for the remediation of petrochemical spills must be used according to the product specification and guidance for use.
- Contaminated remediation materials will be carefully removed from the area of the spill so as to prevent further release of hazardous substances to the environment, and stored in adequate containers until appropriate disposal.

The contractor's camp; a caravan or mobile container, chemical portable toilet and the storage area will be established with consultation of the land owner. Temporary fencing will be established around this area to prevent easy access. Movement of vehicles may result in dust generation and air pollution; the minimal impact will be ensured as the speed will be limited at 40km/h and the contractor's camp will be temporary. Vehicles and all other machineries will be maintained and kept in good condition to prevent air pollution from exhausts.

2.1.2 Plan of the main activities with dimensions

The plan for the main activities will be submitted once the right has been issued and when desktop studies as well as

consultation process with the land owner or legal occupier have been completed. This is because the location and extent of prospecting activities will depend on the outcomes of the proposed desktop studies which can only be conducted once a prospecting right has been issued in terms of section 17(1) of the MPRDA, 2002.

2.1.3 Description of construction, operational, and decommissioning phases.

Construction phase

Prospecting activities are temporary in nature, i.e prospecting activities do not take a very long period as compared to mining. Permanent structures will not be required for the proposed prospecting. There will be no permanent storage of grease oil, diesel or hydraulic fluid within the prospecting premises. The land owner will be consulted regarding the storage of the above should there be a need to store on his premises or else a camp or contactor's site will be used.

A caravan or mobile container, chemical portable toilet and the storage area will be established with consultation of the land owner. Temporary fencing will be established around this area to prevent easy access. Existing farm **access roads** will be used but should there be a need to construct new roads, that will be done with the consultation of the land owner or legal occupier.

Operational phase

Prospecting activities will be conducted in a phased approach.

Phase I;

This phase will take a period of six (6) months and will involve:

- The consultation with land/surface owners concerning legal requirements, access roads, availability of water and housing as well as site establishment. The approximate period panned for this engagement is two (2) months.
- Geological mapping to verify that the Karroo Sequence according to the published geological map terminates to the south and east of the farm is wrong.
- Should it appear that the Karoo sequence extend onto the farm covered in this application, the first objective would be to verify the total area covered by potential iron bearing horizons. If the prospective sequence does not extend onto the farms, the prospecting right will be relinquished with no further work conducted and a section 43 of the MPRDA closure application will be lodged. This whole exercise does not pose or have any negative environmental impacts.

Phase II;
Prospecting activities will be conducted for a period of eight (8) months and will involve:

- Infill drilling by diamond coring at HQ size.
- Down the holes geophysical surveys in holes that intercept iron seams. Geophysical logs could include calliper, gamma, density, sonic and acoustic televiewer if warranted.
- Detailed proximate and ultimate analysis (C,H,N,O) on potential economic iron seams to establish yields, ash content, calorific values and other physical properties for a variety of size fractions. Potential product groups are to be defined on the iron rank as established during phase 1 drilling. All analysis will be within the guidelines of the Samrec Code.
- Calculation of potential indicated resources.

Concurrent rehabilitation will be exercised to ensure that the completed borehole will be closed and rehabilitated before a new pit is opened . There will be no borehole site which will be left unattended as a result of practicing concurrent rehabilitation and this will then minimise the environmental impacts and the final closure liabilities.

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- Detailed proximate and ultimate analysis to further refine potential product groups.
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- Initial resource model and mine plan to initiate pre-feasibility study.

Phase IV & V ;
This phase will be carried out over a period of twenty two (22) months and will involve:

- Prefeasibility study including further drilling to refine resources and establish measured reserves.
- Further geotechnical work to assist in mine planning.
- Infrastructure studies including water, transport, beneficiation of products, mine plan and other applicable infrastructure requirements.
- Investigation of potential market avenues

- Preparation and lodgement of a mining right application at the DMR in terms of section 22 of the MPRDA, 2002.

Decommissioning phase
Concurrent rehabilitation will be practiced. This will ensure that there is no abundant overburden and topsoil which have to be removed at the closure phase. Nevertheless, the iron prospecting activities do not involve in generation of stockpiles of overburden and topsoil. As temporary structures will be utilised for this prospecting activities, minor or no decommissioning will be required as well as minor rehabilitation will be required.

2.1.4 Listed activities (in terms of the NEMA EIA regulations)

The prospecting activities will not involve in any construction or development which will trigger registration and approval of such activities before they can be commenced with as required in terms of NEMA 2006 and 2010 EIA Regulations. Should there be a case wherein such listed activities are required, the EMP will be amended and submitted to the DMR for approval. The relevant processes for EIA in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) will be followed before such activities can commence.

2.2 Identification of potential impacts
(Refer to the guideline)

2.2.1 Potential impacts per activity and listed activities.

Potential Environmental Impacts & Sources	Measures to prevent, mitigate, minimise or manage the impacts
Impact: Air pollution (dust, gaseous emissions) **Source :** Establishment of camp site, movement of vehicles and drill rigs,	➢ Dust suppression measures will be implemented and the area will be sprayed with water. ➢ Speed limits will be erected to reduce generation of dust. ➢ All the equipment and vehicles will be equipped with the manufactures stock standard exhaust systems which will minimise the amount of emissions from their engines. ➢ Burning of waste will not be allowed on site.
Impact: Water pollution (surface water, groundwater and wetlands) **Source:** Spillages from drill rigs	❖ Prospecting activities will not be conducted within 100m radius from a dam, river, stream, wetland or any water body and the following will be ensured: ➢ Control and manage storm water ➢ Prevent soil erosion and keep the water channel clean ➢ Monitor the ground water
Impact: Land degradation, land-use and capability	➢ Completed boreholes will be rehabilitated and re-vegetated. ➢ Areas which do not form part of drilling site will not be disturbed

Source: Poor waste management	➢ Prospecting will be conducted in an environmental sustainable manner. ➢ One of the prospecting objective is to turn the area into other land use/s after closure. ➢ Waste material will be properly managed
Impact: Ecological degradation **Source:** Uncontrolled vehicle movement and poor rehabilitation	➢ Most of the biodiversity will be restored after closure. ➢ Indigenous species will be used to re-vegetate the area. ➢ No animals will be killed and collection of firewood will not be allowed. ➢ Movement of vehicles will be restricted to designated area
Impact: Land pollution **Source:** Lack of proper waste management	➢ It is anticipated that domestic waste of small quantity will be generated by workers. Such waste materials will be kept in waste bins which will be disposed of on a regular basis at the registered waste disposal. The same will apply to the waste from the offices. ➢ Any spillages which may occur will be investigated and immediate action will be taken. In the event of significant spills (>35 litres) of any hazardous substance, this will be recorded and reported to the environmental personnel, Department of Water Affairs, DMR and any other relevant authorities. ➢ Scraps will be kept in designated areas prior delivery to the scrap yard.
Impact: Aesthetic Pollution	➢ The visual impact will be of temporary nature. ➢ The surrounding trees will also serves as the screen to the prospecting area.
Impact: Noise **Source:** Vehicle movements and Drill rigs	➢ The operation will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulation as well as other applicable legislations regarding noise control. ➢ Employees will be supplied with ear plugs. All prospecting vehicles are equipped with silencers and maintained in a road worthy condition.

2.2.2 Potential cumulative impacts.

There are no anticipated cumulative impacts that will result from the proposed prospecting activities. The proposed prospecting area will not be conducted over an existing prospecting area or mining area. Prospecting activities will be conducted in an environmental sustainable manner which will ensure minimal environmental impacts.

2.2.3 Potential impact on heritage resources

The area in question is of no significant heritage resources and no impacts regarding heritage resources are expected as indicated by the farm employees and other surrounding neighbours. However, should the consultation with the land owner as well as with the interested and affected parties indicates that there are some heritage resources which can be affected by the proposed prospecting activities, the area which has such resources can be excluded from the proposed prospecting area. The necessary processes as required by the South African Heritage Resources Agency will be followed as stipulated in terms of the provisions of the National Heritage Resources Act, 1999 (Act 25 of 1999).

Tantobex (Pty) Ltd understand the issues around National and Cultural Heritage Sites. According to National Heritage Resources Act, 1999 (Act No. 25 of 1999), National Heritage Sites include sites of archaeological and paleontological significance or burial sites and public monuments and memorials. The following are the standards on the protection of national heritage resources:

- The prospective miner must before commencing mining activity, ascertain whether the designated site does not include a heritage site.
- National heritage sites must not be destroyed, damaged, excavated, altered, or defaced without a permit.
- Demolishing of building older than 60 yrs is subjected to approval - National Heritage Resources Act, 1999 (Act No 25 of 1999).

2.2.4 Potential impacts on communities, individuals or competing land uses in close proximity.

(If no such impacts are identified this must be specifically stated together with a clear explanation why this is not the case.)

Although drilling will be limited in spatial extent, this proposed prospecting will somewhat reduce the grazing available to famers. Vehicle movement will also disturb some other farming activities.

Noise pollution and visual impact are the most common potential impacts that can affect the communities, individual or competing land users in close proximity. However, mitigation measures to minimise such impacts are in place as already discussed above. It should also be noted that dust and noise impacts will be minimal because they are in most cases localised to the drill sites and access tracks and this is for a shorter period. The prospecting activities will be conducted in a

manner that will ensure that the above-mentioned are not negatively affected by the proposed prospecting activities.

2.2.5 Confirmation that the list of potential impacts has been compiled with the participation of the landowner and interested and affected parties,

The issues of potential impacts on grazing and tracks was discussed with the farm owners. time period for 30 days was not enough to meet this requirement. It was made clear that the company (as required and stipulated in the MPRDA) is liable and will remain liable for rehabilitation purposes until a closure certificate is issued in terms of section 43 of the aforementioned Act.

Water and soil pollution is also a concern and will be avoided by all possible means. Water usage will take cognisance of the existing uses and reliance on ground water.

2.2.6 Confirmation of specialist report appended.
(Refer to guideline)

There is no specialist report appended as the proposed prospecting activities will not result in major negative impacts. Sensitive areas were also not identifies in close vicinity to the proposed prospecting area. Migration of prospecting activities to mining activities will involve different specialist studies as mining activities have significant impacts as compared to prospecting activities. Should the proposed prospecting activities give an indication that the area has potential for mining activities ,i.e it will be economic viable to mine the mineral applied for over the land in question, a mining right application which will require a lot of specialist studies will be lodged.

3 REGULATION 52 (2) (c): Summary of the assessment of the significance of the potential impacts and the proposed mitigation measures to minimise adverse impacts.

3.1 Assessment of the significance of the potential impacts

3.1.1 Criteria of assigning significance to potential impacts

The assigning of the significance to potential impacts is integration of the severity (magnitude of the potential impacts), type of the impact, extent to which the impact will occur, probability of the impact (the likelihood of the impact occurring) and the duration of the impact. This is the best judgement of whether the impact is important or not within the broad context , once the mitigation is taken into account.

By using the combination of these criteria, impacts have been assigned a rating of high (H), medium/moderate (M), low (L), very low (VL) or no impact. A significance rating is assigned twice to the impact. Firstly, to indicate significance without mitigation or optimization and secondly, to indicate significance after mitigation or optimization. This is done to highlight the importance of mitigation or optimization of potential impacts.

CATEGORY	DESCRIPTION/DEFINATION
High	Impacts will be of high significance if one of the following apply: The extent is national to international; The duration is long term to permanent; The severity will be high; Probability is definite
Moderate	Impacts will be of moderate significance if one of the following apply: The extent is local to regional; The duration is medium to long term; The severity is major; The probability is highly probable
Low	Impacts will be of low significance if one of the following apply: The extent is local; The duration is temporary to permanent; The severity is low; The probability is probable
Very Low	Impacts will be of high significance if one of the following apply: The extent is site-specific The duration is temporary to permanent; The severity is very low The probability is improbable

No impacts	A potential concern of impact which, upon evaluation, is found to have no impact

3.1.2 Potential impact of each main activity in each phase, and corresponding significance assessment

Main Activity	Impact	Significant Assessment
Movements of vehicles & machineries	Noise, dust, leakages of oils & diesel,	Very Low
Establishment of site camp	Noise, dust, leakages of oils & diesel,	Low
Drilling	Water pollution	Very low
Vehicle maintenance	Spillages	Low
Road construction	Noise, dust, leakages of oils & diesel,	Low
Drilling	Ecological degradation	Modarate

3.1.3 Assessment of potential cumulative impacts.

Based on the nature of the prospecting activities, there are no cumulative impacts anticipated. Poor management of access roads and rehabilitation activities can create cumulative impacts on vegetation of the proposed prospecting area if not properly managed.

3.2 Proposed mitigation measures to minimise adverse impacts.

3.2.1 List of actions, activities, or processes that have sufficiently significant impacts to require mitigation.

Prospecting activities such as transporting or dispatching activities, on site supporting activities, drilling, excavating, fencing, construction of roads, etc can have negative environmental impacts if not managed properly. They can result in:

Air pollution (dust, gaseous emissions)

- Dust suppression measures will be implemented and the area will be sprayed with water.
- Speed limits will be erected to reduce generation of dust.
- All the equipment and vehicles will be equipped with the manufactures stock standard exhaust systems which will minimise the amount of emissions from their engines.
- Burning of waste will not be allowed on site.

Water pollution (surface water, groundwater and wetlands)

❖ Prospecting activities will not be conducted within 100m radius from a dam, river, stream, wetland or any water body and the following will be ensured:

- Control and manage storm water
- Prevent soil erosion and keep the water channel clean
- Monitor the ground water

Land degradation, land-use and capability

- Completed trenches or excavations will be rehabilitated and re-vegetated.
- Areas which do not have gravel will not be disturbed
- Prospecting will be conducted in an environmental sustainable manner.
- One of the prospecting objective is to turn the area into other land use/s after closure

Ecological degradation

- Most of the biodiversity will be restored after closure.
- Indigenous sp will be used to re-vegetate the area.
- No animals will be killed and collection of firewood will not be allowed

Land pollution

- It is anticipated that domestic waste of small quantity will be generated by workers. Such waste materials will be kept in waste bins which will be disposed of on a regular basis at the registered waste disposal site. The same will apply to the waste from the offices.
- Any spillages which may occur will be investigated and immediate action will be taken. In the event of significant spills (>35 litres) of any hazardous substance, this will be recorded and reported to the environmental personnel, Department of Water Affairs, DMR and any other relevant authorities.
- Scraps will be kept in designated areas prior delivery to the scrap yard.

Noise

- The operation will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulation as well as other applicable legislations regarding noise control.
- Employees will be supplied with ear plugs. All prospecting vehicles are equipped with silencers and maintained in a road worthy condition.

3.2.2 Concomitant list of appropriate technical or management options

(Chosen to modify, remedy, control or stop any action, activity, or process which will cause significant impacts on the environment, socio-economic conditions and historical and cultural aspects as identified. Attach detail of each technical or management option as appendices)

The existing operational procedures for Tantobex (Pty) Ltd will be adhered to as follows:

IMPLEMENTATION OF OPERATING PROCEDURES DURING PROSPECTING

1 SCOPE AND PURPOSE

The purpose of this procedure is as follows:

 To ensure that the operating procedures at the prospecting sites are adhered to at all times by field staff, casual workers and also by drilling and excavation contractors that may be contracted by Tantobex (Pty) Ltd from time to time.

 To define the responsibilities of staff and/or contractors and /or casual workers in terms of the above purpose.

2 RESPONSIBILITIES

- Senior Project Manager
- Project Manager
- Geologists
- Contractors
- All employees are obliged to report safety, health and environmental incidents or non-conformances on the incident reporting system available on Isometrix or report it to the Project Geologist.

3 RELATED DOCUMENTS

- SANS ISO 14001:2004
- OHSAS 18001:2007
- GE RSA ECOHS Policy
- GE RSA Legal Register, including other requirements
- Environmental Management Plans (EMPlans) for specific prospecting rights
- Tantobex (Pty) Ltd's Procedures for Managing Significant Impacts Related to Exploration Drilling Including Mandatory Code of Practice for the Prevention of Flammable Gas Explosions in Mines Other Than Coal Mines

- Tantobex (Pty) Ltd's Procedures for Managing Significant Impacts Related to Exploration Pitting
- Tantobex (Pty) Ltd's Procedures for Emergency Preparedness and Response Procedure
- Tantobex (Pty) Ltd's Procedures for Ensuring Appropriate Rehabilitation of all Prospecting Activities and Minimise any Residual Impacts.
- Standard Industrial Classification of All Economic Activities (5th Edition), published by the Central Statistics Service, 1993

4 LEGAL REQUIREMENTS

- NHRA: National Heritage Resources Act, 1999 (Act 25 of 1999)
- MPRDA: Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002), specifically Section 29 and Regulation 52 (EMPlans)
- NEMA: National Environmental Management Act
- OHSAct: Occupational Health and Safety Act
- MHSA: Mine Health and Safety Act
- LEMA: Limpopo Environmental Management Act, 2003 (Act 7 of 2003)
- NEMA: EIA Regulations
- Hazardous Substances Act
- ECA: Environment Conservation Act
- NEM: Waste Act

5 PROCEDURE

5.1 TRAINING

a. It is the responsibility of the Project Geologist to be aware of the different operating procedures pertaining to each phase of exploration and to ensure that they are properly adhered to. The operational procedures are listed under Related Documents.

b. The Project Geologist is responsible to ensure that staff and casual workers are inducted and informed of their environmental responsibilities and the relevant operational procedures; this must be recorded.

c. It is the Senior Project Manager's responsibility to ensure that tender documents sent to potential contractors contain all the relevant operating procedures that the contractor will have to adhere to in order to complete the work for which the tender is being given. Once the tender is accepted and signed by the contractor, the contractor is then legally bound to adhere to these operating procedures.

d. It is the Project Geologist's responsibility to ensure that the contractor adheres to the operating procedures.

e. Contractors and casual labour will undergo an induction which will cover the following:

- Basic explanation of SHE and EMS approach
- ECOHS policy commitment and requirements
- Basic legal requirements
- Sections of this procedure as applicable to their responsibilities
- Related procedures if relevant to their responsibilities
- Conditions of employment and UIF matters

- ❖ Occupational health screening
- ❖ Possible security check

5.2 WATER USE, OTHER DWAF PERMITS AND OTHER LEGAL REQUIREMENTS

5.2.1 Riparian areas

If prospecting is to take place within a riparian area the relevant application form (DW781/DW775 supplemental must be completed and handed in to DWAF for approval prior to the commencement of activities in these areas, even if no water is being taken from the resource for use in the project.

Proof that the forms were submitted to DWAF and copies of the forms submitted must be kept.

5.2.2 Water supply

It must never be assumed that water for prospecting will be obtained from the site unless discussions with the landowner indicate that he/she has sufficient and is happy to supply from their source. A local bulk water supplier, authorised to issue water will be approached to ascertain if the required volume of water would be available. A reply from this body is to be attached to the application when it is submitted to DWAF, if required. Copies of the reply from the relevant authority and the application forms submitted to DWAF must be kept.

In terms of the Standard Industrial Classification of All Economic Activities (5th Edition), published by the Central Statistics Service, 1993 as amended and supplemented, "small industrial users" means water users who qualify as work creating enterprises that do not use more than twenty cubic metres per day and there are the following categories:-

(a) 1 : food processing
(b) 2 : prospecting, mining and quarrying
(c) 3: manufacturing
(d) 4: construction

Even if it is not anticipated that a permit will be required as the water would be obtained from a bulk water services provider, the permit application to DWAF (forms DW758, DW760 and DW788), giving all details of the project, will be available if required.

5.2.3 Removal of Vegetation (Northern Cape Province)

In the Northern Cape Province, (Northern Cape Department of Economic Development, Environment and Tourism) NCEDET will be approached for the permit in terms of NCEMA for the removal of indigenous vegetation during the course of prospecting.

5.2.4 Cultural and historical sites

Confirmation from the South African Heritage Resources Agency (SAHRA) that no items of cultural or historical significance have been identified on the site is necessary if major disturbances (extensive trenching, bulk sample pits, large diameter drilling) are planned, as per the National Heritage Resources Act. This requires a Phase 1 Heritage Impact Assessment to be carried out by a registered archaeologist.

Staff and contractors must be briefed on the following course of action if nay artefacts or structures or remains of building are encountered during the course of their prospecting work:

- ❖ Stop work in the vicinity of the discovery and report to the Project Geologist.
- ❖ If the Project Geologist cannot be sure that the structure is modern (< 50 years old) then the Senior Project Manager must be contacted to organise a Phase 2 Heritage Impact Assessment.
- ❖ The outcome of this assessment will determine whether and how prospecting may proceed in the vicinity of the discovery.

5.2.5 Availability of documentation

A copy of the signed prospecting right and approved EM Plan is to be kept in the field project office.

5.3 BEHAVIOUR ON PROSPECTING RIGHTS

a. Cigarette butts should be well extinguished and placed in a rubbish bag and disposed of at the waste disposal site. No smoking will be allowed in high risk fire areas during the dry season.

b. The following are prohibited at sites:

- Littering
- Horseplay
- Lighting of fires

c. All Tantobex (Pty) Ltd's employees are expected to conduct themselves in a manner that projects our values and to impart this behaviour onto contractors and casuals.

5.4 SANITATION FACILITIES

a. A portable toilet will be provided at drilling or mechanised pitting sites.

b. Environmentally friendly agents will be used in the toilets to biodegrade the contents.

c. The toilet contents will be disposed of at a registered water treatment works / sewerage works.

d. A copy of the registration of the treatment works / sewerage works should be obtained, if possible.

e. The toilet will be maintained so that it remains in an acceptable condition.

5.5 WASTE MANAGEMENT ON PROSPECTING SITES

a. Hazardous waste will be kept separate from general waste.

b. There will be appropriate receptacles with lids at convenient places for each of these.

c. Containers and spades will be available to collect and store any soil contaminated with hydrocarbons.

d. No waste will be disposed of onsite and no littering is allowed.

e. Before taking waste to the nearest municipal landfill a copy of the license issued by the Department of Environmental Affairs and Forestry should be asked for and kept on file.

f. General waste will be removed from the site on a weekly basis and disposed of at an authorised disposal site.

g. Hazardous waste will be removed from the site on a daily basis and placed in a safe place, precautions should be taken to avoid any

additional spillage when stored, until it can be disposed of at a licensed hazardous waste site.
h. Records will be kept of the disposal of all hazardous waste.

5.6 ACCESS TO SITE AND TRACK / PATH CONSTRUCTION

a. The landowner must be consulted in order to gain access to the site.
b. As far as possible existing tracks and roads shall be used.
c. In cases where off-road driving is unavoidable, the shortest possible route will be taken (unless it is a steep slope in which case a zig-zag will be optimal) and the effects to vegetation will be minimised by sticking to fence lines as far as possible, trimming trees and bushes only where necessary and only removing bushes and small trees (<3m) if absolutely necessary.
d. Off-road access by this means will be for short periods only (< 3 months).
e. Off-road access will be restricted to a single track.
f. The landowner will be consulted as to the position of the off-road route.
g. The route will be demarcated (use rocks or stones along the edge if possible) and there will be no driving outside this footprint so as to prevent the disturbed area from getting any wider.
h. If a footpath is made, it will be demarcated in the same way such that the footprint cannot be increased.
i. If the track traverses an area where it is known there are red data species, the route will be checked with a botanist prior to being confirmed.
j. If the area is very steep a slope stability test will be conducted prior to the track being established.
k. If the track is such that traversing it is likely to cause erosion, consideration will be given to cementing two strips, making use of water breaks and mitre drains to take the water off the road, reduce velocity of water and silt traps to allow sediment to settle out before the water flows into an area where there is least chance of erosion or damage to a wetland. The cement will be removed during rehabilitation, unless landowners request that it be left in place.
l. In very steep areas or where the habitat is very sensitive or prone to erosion, the services of an appropriate engineer will be used to design and build the track.
m. Any rocks or stones removed will be stored for replacement during rehabilitation, as will any topsoil if it necessary to remove any soil.
n. The open or closed status of gates shall be clarified with the landowner/tenant and maintained throughout the prospecting period.
o. Reasonable speeds must be observed to avoid accidents, excessive noise, dust and injury to livestock.
p. Tracks should not be used during very wet weather as the impact of compaction and chances of incidents and accidents and impacts on the environment will be much higher.
q. For rehabilitation of tracks and footpaths – See Rehabilitation procedure

5.7 WALKING IN THE FIELD

a. Plan the walk and consider location, degree of difficulty, environmental sensitivity of the site and duration of the walk.
b. Walkers should ensure they have appropriate navigational equipment eg. GPS, maps and compass.
c. Avoid where possible hazards such as cliff edges, slippery tracks, rocks, dangerous trees, extreme weather and be informed on the nature of the terrain to be travelled over.
d. Water/Clothing/Equipment – walkers should ensure they carry adequate water, dress appropriately and wear suitable hiking footwear.
e. Be aware of the following risks while walking in the field:
- Dehydration, sunburn and sun/heat stroke
- Shock arising from injury
- Ankle sprain
- Bone fracture
- Symptoms suggesting the onset of hypothermia
- Asphyxiation and smoke inhalation
- Burns
- Snake bites
- Smoke and foreign matter in eyes

f. Supervisors of teams walking should be trained in first aid to cope with the above risks.
g. Bush Walkers code – aim for minimal impact bush walking. Take only photographs and leave only footprints!
h. Additional equipment to be carried in a hands free back pack: sun hat and sunscreen (essential, even in winter). The following additional equipment items may also be considered: a lighter or waterproof matches, penknife, identification, money, survival bag/blanket, spare boot laces, gaiters, mobile phone, sun glasses, whistle, torch and warm top.
i. Observe - Each member of the group should keep in sight the walkers immediately ahead and behind to reduce the risk of the group becoming split.
j. Do not rely on others for your welfare. Bring the correct equipment, clothing, food and water so that you are fully prepared.
k. Be careful – avoid walking alone into unknown terrain.

5.8 VEHICLES, EQUIPMENT, FUELS AND OILS

a. It is the duty of each driver to perform a daily and weekly pre-start check on his/her vehicle to ensure that the all components of the vehicle are in a good state of repair and that it has no oil or hydraulic leaks which may causes damage to our environment if it leaks onto the ground. These checks are documented.
b. It is not planned to do any maintenance of vehicles on prospecting sites. Only emergencies will receive attention.
c. Other equipment used in the prospecting process must also be adequately maintained to minimise spillage of fuel and oils during operations which cause pollution of the environment.
d. Drip trays will be used to collect oils and fluids from any emergency on-site servicing and repair of machinery and vehicles. Drip trays or PVC

sheeting will be placed under any machinery on site that has the potential to develop an oil leak. All oil containers kept on site must be kept in drip trays.

e. The contents of drip pans / PVC linings must be soaked up with oil biodegrading loose fibre and disposed of at a registered hazardous waste facility (e.g. Interwaste).

f. Any spill onto the ground should be cleaned up immediately by removing the spill together with the polluted soil and disposed of at a register hazardous waste facility (e.g. Interwaste).

g. Waste disposal must be done according to 4.5 above.

h. A spill kit with all items up to date must be kept on site at all times. The content of the spill kits should be checked regularly.

i. Ensure all heavy items are raised off the ground to limit compaction where practicable.

j. Preparation and procedure in the event of fire is covered under the Emergency Preparedness and Response Procedure

k. A log book is kept for each vehicle.

l. The amount of fuel used and kilometres travelled per month are calculated from the log book.

m. These are forwarded to the Senior Project Manager who checks the consumption of fuel against kilometres travelled. This highlights problems of excessive fuel usage.

n. Should there be a problem, vehicles are sent in for maintenance by outside contractors, as is the case with routine preventative maintenance.

o. Old tyres are retained by the suppliers for retreading or disposal.

p. Battery servicing should be done by outside contractors; Transasia Minerals 999 (Pty) Ltd's staff should only top up distilled water to the indicated level.

q. Battery charging, if required, will be done in a well-ventilated area, with a drip tray underneath the battery.

r. If the battery does not take a charge due to damaged cells a replacement battery will be obtained on an exchange basis from outside contractors.

5.9 SOIL AND STREAM SAMPLING

a. Soil sampling entails the collection of the top 1- 30 cm of soil from an area not exceeding 10 m2 in total at each site. Sites are usually located in a grid pattern.

b. Soil sample sites must be rehabilitated by re-covering the site with cleared debris and vegetation.

c. Stream sampling entails the collection of 30 – 210 litres of material from a heavy mineral trapsite within a stream.

d. Stream sample sites must be refilled with oversize material (pebbles, cobbles and boulders) so as to minimise the potential for erosion.

5.10 GEOPHYSICAL SURVEY

Ground geophysical survey usually requires operators of geophysical instruments to walk along straight lines in collecting data

Line cutting should be limited to the trimming of branches and undergrowth; no cutting down of trees or large bushes is permitted
Some surveys require the marking of positions along each survey line; this is done by using biodegradable flagging tape. Occasionally wooden stakes are used to mark the ends of lines; these should be removed on completion
Occasionally, a permanent marker will be required to mark the position of a survey for future reference. A steel fence dropper, cemented to the ground if required, will be used for this purpose. The position of the permanent marker will be cleared with the landowner

5.11 DRILLING

See Drilling Procedure and Rehabilitation Procedure

5.12 PITTING AND TRENCHING

See Pitting Procedure and Rehabilitation Procedure.

5.13 MONITORING AND REPORTING

a. It is the Project Geologist's responsibility to maintain ongoing monitoring of significant impact sites (drilling, trenching and pitting) in his area of responsibility.
b. This will involve before, during and after photographing of drilling and excavation sites from set perspectives. "After" photographing will take place as close as possible to six monthly intervals commencing after the completion of activity at the site.
c. If any invasive plants are observed on sites disturbed by Tantobex (Pty) Ltd for the purposes of prospecting, they must be removed according to the agreed method.
d. If any signs of erosion on prospecting sites or prospecting tracks are noted, action must be taken immediately to correct this.
e. If rehabilitation is not proceeding according to plan, a relevant competent person must be consulted as to what action should be taken.
f. This will continue until the site is considered to have returned as close as possible to its natural state or until a closure permit has been granted.
g. The Project Geologist will include a report on environmental compliance in the project report after major activities such as drilling or trenching.
h. This should include photographs and written descriptions of all significant impact sites currently under observation, i.e. drill and trench sites.
i. If water quality is monitored, the accurate location of monitoring points must be recorded and the samples must be collected in bottles, with the site identified on these (sterile bottles if for bacteriological analysis). All samples must be kept cool (fridge and coolbox) and must be delivered to the registered laboratory for testing within 24 hours of collecting. Results must be checked against the limits for compliance and action taken if there are non-conformances. This information can be incorporated in the closure report when the Prospecting Right is relinquished.
j. An internal EMS audit will be conducted annually and the external audit could include one or a number of field sites. These audits will check compliance with the EM Plan.
k. DMR do ad hoc inspections to check compliance with the EM Plan.

l. The Project Geologist must monitor and report as required by regulation 55 of the Mineral and Petroleum Resources Development Act.

6 NON-CONFORMANCES
Should be reported on the Incident Reporting System on Isometrix.

7 RECORDS
Original paper records relating to the prospecting rights (as legal entities) are kept at Head Office, with copies in the field file. Other paper records should be kept in the prospecting right field file and scanned copies should be stored under the relevant folder.

This should be read in conjunction with the rehabilitation procedures outlined under section 6.1 of this EMP

3.2.3 Review the significance of the identified impacts
(After bringing the proposed mitigation measures into consideration).

The identified potential impacts which range from air pollution, dust, noise pollution, spillages, aesthetic impacts, invasion of alien species, land degradation, water pollution and land pollution will be properly managed. None of this impacts will be significant since the proposed prospecting activities will be of small scale, mitigation measures will be adhered to and concurrent rehabilitation will be practiced.

4 REGULATION 52 (2) (d): Financial provision.The applicant is required to-

4.1 Plans for quantum calculation purposes.
(Show the location and aerial extent of the aforesaid main mining actions, activities, or processes, for each of the construction operational and closure phases of the operation).

This EMP was prepared and submitted for prospecting activities and not for mining permit. For prospecting activities it is not more practical to provide the requested information as prospecting is undertaken through a phased approach. The required plans can only be provided during the course of prospecting activities or for a EMPR for a mining right application.

4.2 Alignment of rehabilitation with the closure objectives
(Describe and ensure that the rehabilitation plan is compatible with the closure objectives determined in accordance with the baseline study as prescribed).

The closure objectives are;
- To leave the site in a safe state for humans and animals,
- Ensure that the water resource and underground water is not affected by rehabilitation activities

- To consolidate and remove the stockpile material remaining on the site and hence restoring the original topography of the site.
- To promote indigenous vegetation growth suitable for animals that graze over the disturbed areas on the site.
- To remove all category 1 invader vegetation and demarcate the Eucalyptus sp. on the site.
- To leave the prospecting area at a potential stage for any other land use including the pre-prospecting land-use.

4.3 Quantum calculations.

(Provide a calculation of the quantum of the financial provision required to manage and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulation54 (1) in respect of each of the phases referred to).

Potential Impacts	Annual Management & Concurrent Rehabilitation Cost	Final Rehabilitation Costs
Noise pollution	R6 000.00	R1 000.00
Erosion	R8 500.00	R2 000.00
Water pollution	R10 000.00	R2 000.00
Waste material	R3 000.00	R1 000.00
Soil pollution	R8 000.00	R2 000.00
Oil, grease, diesel, acid or hydraulic fluid spillages	R14 000.00	R2 000.00
Air pollution	**R6 000.00**	**R1 500.00**
Revegetating	**R2 000.00**	**R1 000.00**
TOTAL	**R67 500.00**	**R12 500.00**
GRAND TOTAL		**R80 000.00**

4.4 Undertaking to provide financial provision

(Indicate that the required amount will be provided should the right be granted).

It is hereby undertaken that the financial provision for rehabilitation purposes as required in terms of section 41 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 202) as read with regulations 53 and 54 of the Regulations to the said Act will be submitted to the Department of Mineral Resources; Northern Cape Regional Office once a prospecting right has been granted by the minister or the delegates of the minister. Tantobex (Pty) Ltd is committed to has set aside an amount of **R80 000.00** for rehabilitation of the proposed prospecting activities.

5 REGULATION 52 (2) (e): Planned monitoring and performance assessment of the environmental management plan.

5.1 List of identified impacts requiring monitoring programmes.

Environmental Impact	Components affected and risk factor
Air pollution (dust, gaseous emissions)	➢ Gaseous and dust emissions have adverse impact on **human health**. ➢ Long term **atmospheric impacts**, e.g. can change microphysical properties of clouds, change local climates, act as condensation nuclei. ➢ **Reduction in visibility**
Water pollution (surface water, groundwater and wetlands)	➢ **Contamination** of surface and underground water-adverse impacts on human health. ➢ **Soil erosion** and **storm-water** management. ➢ Disturbance on **surface run-off** patterns.
Land degradation, land-use and capability	➢ **Soil erosion**-loss of top soil, **siltation**. ➢ Soil contamination-loss of vegetation cover and soil fauna. ➢ Soil **compaction**
Ecological degradation	➢ Loss of plant and animal species, wetlands affected. ➢ Impact on soils, water quality and aquatic life.
Invasion of alien plants	➢ Loss of indigenous plant species and loss of water
Aesthetic pollution	➢ Can be through open pits, improper disposal of waste. Hazardous waste (chemical and radioactive) can have adverse impacts on human health due to high radiation and corrosive hazard. ➢ Coating of houses etc with dust
Noise	➢ Can be nuisance noise (disturbing noise) or 'industrial' noise, which can have negative impacts on health, also depending on proximity to residential areas.
Fire	➢ Loss of life (animal and human) and biodiversity

5.2 Functional requirements for monitoring programmes.

Every year, a qualified environmental consultant will be employed to undertake an environmental performance of the prospecting activities. As part of the terms of reference to the consultant, the consultant will inform the employees of his/her findings and provide tips of reducing some of the environmental impacts noted. The employees will be requested to sign a register of proof of training.

Regulation 55 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) clearly describes the process and procedure as well as requirements for monitoring and auditing of the performance of this plan to adequately address environmental impacts from the operation. The following information must be provided. The monitoring and performance assessment of the prospecting activities will be conducted as prescribed in terms of regulation 55 of the Mineral and petroleum Resources Development

Act, 2002 (Act 28 of 2002). Section 38 of the said Act is also relevant as far as monitoring of impacts is concerned. This Section requires the holder of a prospecting right and mining right or permit to rehabilitate the land to its natural state or predetermined condition.

The holder is also responsible for any environmental damage or pollution as a result of his operations, both inside and outside the prospecting right area. This Section places the responsibility for any environmental damage squarely with the holder of the right. The holder therefore has the obligation to control such damage before it becomes unmanageable. The continuous monitoring of key environmental indicators throughout the life of the mine operation will ensure that these impacts are recognised before they get out of hand.

Appropriate monitoring and performance assessments specifically for the Environmental Management Plan, will be conducted taking into account all the environmental features. Monitoring and performance assessment of approved EMP will be applicable to the whole life cycle of the prospecting operation.

5.3 Roles and responsibilities for the execution of monitoring programmes.

Regulation 55 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) clearly describes the process and procedure as well as requirements for monitoring and auditing of the performance of this plan to adequately address environmental impacts from the operation. Therefore, the close corporation as the right holder will be liable to ensure that there is monitoring of the prospecting activities o ensure compliance to the approved EMP. The prospecting team or contractors will ensure that there is a dedicated person who will be monitoring the performance of the operation as well as reporting and keeping records of both compliance and non-compliance.

5.4 Committed time frames for monitoring and reporting.

Monthly meetings are ideal to facilitate awareness of job-specific environmental dangers and to educate employees as to how they can live a more sustainable lifestyle outside work. The method and medium of communication during the monthly meetings will be determined by the team leader facilitating the meeting. The topics discussed in monthly meeting will be recorded in a log book, with all employees present signing an attendance register.
The team leader who is to undertake the monthly meeting will be provided with the necessary training so that he/she can effectively inform the other employees about the topics listed below.

The topics for discussion have been identified as both topics specific to the prospect but also topics that the employees can take home and use in their personnel life. **Eleven topics have been chosen so that**

ONE topic can be taught every month of the year (except December). The topics include:

❖ **Dust** generation related impacts (particularly health related impacts)
- Which prospecting activities causes dust
- How the dust generation from these activities can be reduced such as reducing drop heights.
- The need for enforcing a speed limit.

❖ **Noise** generation and related impacts (particularly health related).
- The importance of wearing hearing protection in noisy areas
- How noise can impact on surrounding land owners and the need to restrain from creating unnecessary noise (especially at night).

❖ **Waste** minimisation and recycling.
- Training on the difference between domestic waste and industrial waste
- The importance on separating waste into the demarcated receptacles
- The importance of disposing of industrial waste correctly
- Good housekeeping tips and making use of bins provided
- Why it is important to minimise waste
- What can be recycle
- Why it is important to recycle

❖ **Alien vegetation** identification and removal, and the importance of indigenous vegetation.
- Which are the common alien vegetation plants
- Why alien vegetation must be eradicate
- The benefits of indigenous vegetation

❖ **Hydrocarbon spillages-** The problem associated with spills
- What hydrocarbon spillages
- Why they are regarded as bad

❖ **Practical training** regarding the clean-up a major and minor hydrocarbon spills.
- One meeting will be dedicated to showing the employees how to deal with a hydrocarbon spill. They will take the absorbent provided on the site and spread it over a hydrocarbon spill. The absorbent and polluted soil will be dug up and placed in the contained area for bioremediation. The bioremediation substance will be used to assist in of the soil remediation process.

❖ **Fire**
- Trained on what procedure to follow in the event of a fire including who to contact in the case of an emergency
- Trained on how to use fire extinguishers
- Informed on the importance of fire breaks
- Taught about the different fire containment techniques for different fire

- Taught on what first aid is required for smoke inhalation and for burns.
- Provided with tips to ensure that fires don't ever pose a threat.

❖ **Environmental Management Plan training**

- One meeting will be dedicated to discuss the environmental management plan and which management aspects are relevant to individual employees.

❖ **Concurrent Rehabilitation**

- Why concurrent rehabilitation is necessary
- What activities are required for concurrent rehabilitation of a prospecting operation
- The benefits of concurrent rehabilitation
- Water and electricity consumption and conservation
- Why is it important to conserve water and electricity
- Practical tips on how an individual/ household can save water and electricity

❖ **Environmental Reporting**

- What is an environmental incident such as excessive tailpipe emissions
- When should you report an environmental incident
- How should you respond to an environmental incident

In addition to a once a month dedicated meeting, environmental topics will be discussed at a meeting if the environmental incident occurred during the previous day. Such incident may include a fuel spill or a complaint from the surrounding landowner. During the meeting, the following topics will be discussed (this is not an exhaustive list):

❖ How and why the incident occurred?
❖ How the incident was dealt with (if applicable)?
❖ Evaluation of the response taken by staff?
❖ Can the response be improved?
❖ What preventative measures should be implemented?
❖ What can be done to prevent the likelihood of the incident recurring?

The outcome of the discussion will be noted and implemented by the employees

6 REGULATION 52 (2) (f): Closure and environmental objectives.

6.1 Rehabilitation plan

(Show the areas and aerial extent of the main prospecting activities, including the anticipated prospected area at the time of closure).

Rehabilitation will be always in mind from the commencement of prospecting activities. It will be ensured that prospecting activities will be conducted concurrently with rehabilitation process. However, the

closure pan will accompany the closure application should the prospecting operation fail to yield positive results.

6.2 Closure objectives and their extent of alignment to the pre-mining environment.

The closure objectives are;

- To leave the site in a safe state for humans and animals,
- Ensure that the water resource and underground water is not affected by rehabilitation activities
- To consolidate and remove the stockpile material remaining on the site and hence restoring the original topography of the site.
- To promote indigenous vegetation growth suitable for animals that graze over the disturbed areas on the site.
- To remove all category 1 invader vegetation and demarcate the Eucalyptus sp. on the site.

To leave the prospecting area at a potential stage for any other land- use including the pre-prospecting land-use. It must be noted that the existing rehabilitation procedures for Tantobex (Pty) Ltd will be adhered to as follows:

TANTOBEX (PTY) LTD APPROPIATE REHABILITATION AND MINIMISATION OF RESIDUAL IMPACTS PROCEDURES

1 MANUAL PITTING

- Backfill pit using subsoil first and ending with topsoil, all of which has been stored on tarpaulins. The final surface should resemble pre-pitting form as much as possible.
- Replace all sticks, stones, rocks, logs etc which had been removed and stored over the site to hold soil down, serve to collect windblown soil and seeds, help retain moisture and create microhabitats for plants and fauna.
- If quartz or other light coloured pebbles were collected separately (in arid areas), these must be scattered evenly over the area – causing heat to be reflected and thus cooling the surface, creating microhabitats.
- Determine if slope warrants placing berms over pit site on the contour so as to reduce velocity of rainwater, halt soil movement and minimise chances of erosion.
- If it does ensure these are placed and anchored as firmly as possible and that gaps below branches are filled with smaller twigs or stones.
- If vegetation was removed and stored, scatter this over the pit site as a mulch to hold soil and seeds, and help prevent erosion.
- Check with project geologist if a) seeding is to be done and if b) Eco-T is to be used.
- Remove all tarpaulins from the site.
- Photograph the pit, file information with date and note when first monitoring is due.

2 MECHANISED PITTING

- If fill for the pits (rock) is brought in to replace samples taken from the pit, it must be brought in on the trucks that come to collect the sample bags in order to reduce the number of trips to the site.
- Fill must be sourced from the nearest registered facility.
- It must be ensured that no parts or seed of invasive alien plant species are included in the fill brought to the site.
- Place fill in pit, replace stored subsoil
- Depending on surrounding rock or soil, compress soil to compact it so that increased porosity of the fill will not result in accumulation of water which could lead to erosion when it decants.
- Replace topsoil, restoring land form as close as possible to original form.
- Tamp down gently, but leave slightly domed to allow for subsidence.
- If any soil (e.g. around the edge of the pit) has been severely compacted, it must be loosened / scarified to allow water and seed penetration. If the slope is very steep the advice of a competent person must be obtained on rehabilitation measures, so as to ensure minimal chance of erosion.
- Replace all sticks, stones, rocks, logs etc which had been stored, over the site to hold soil down, catch windblown soil and seeds, help retain moisture and create microhabitats for plants and fauna.
- If quartz or other light coloured pebbles were collected separately (in arid areas), these must be scattered evenly over the area – causing heat to be reflected and thus cooling the surface, creating microhabitats.
- If vegetation was removed and stored, scatter this over the pit site as a mulch to hold soil and seeds, and help prevent erosion.
- Determine if slope warrants placing berms over pit site on the contour so as to reduce velocity of rainwater, halt soil movement and minimise chances of erosion.
- If it does ensure these are placed and anchored as firmly as possible and that gaps below branches are filled with smaller twigs or stones.
- Check with project geologist if a) seeding is to be done and if b) Eco-T is to be used.
- All equipment, fencing, fuel etc. must be removed from site.
- All waste must be removed from site and disposed of at the appropriately licenced facilities.
- Portable toilets must be removed and the contents disposed of at an approved facility.
- Remove all tarpaulins from the site.
- Photograph the pit and file information with date and note when first monitoring is due.

3 SMALL AND LARGE DIAMETER DRILLING

- Any drill holes which have intersected water are to be left open at the request of the landowner, may only be left open if the landowner takes responsibility for completion of the necessary forms and lodging these with DWA in order to obtain their approval.
- These will be capped as described in the drilling procedure.
- The areas around the hole will be cleared of all drilling chips.

- Drill holes not be used in the future are to be grouted with bentonite as described in the drilling procedure so as to reduce the possibility of the formation of any acid leachate and the possibility of the transfer of any pollutants to ground water, where this has been identified as a concern.
- Other drill holes must be closed as per the drilling procedure.
- Remove the lining of the sump.
- Fill the sump with the material originally moved to make the excavation, and which has been stored on a tarpaulin.
- Restore profile of site to fit in with adjacent ground.

- Loosen compacted ground.
- Replace any topsoil that has been removed.
- Replace stored rocks and stones evenly over site to prevent wind and water erosion, trap seeds and aid water retention.
- If quartz or other light coloured pebbles were collected separately (in arid areas), these must be scattered evenly over the area – causing heat to be reflected and thus cooling the surface, creating microhabitats.
- If any soil on the site has been severely compacted, it must be loosened /scarified to allow water and seed penetration. If the gradient is steep, this loosening / scarifying should be done in bands on the contour, leaving some undisturbed sections between the loosened sections.
- If the slope is very steep the advice of a competent person must be obtained regarding rehabilitation measures so as to ensure minimal chance of erosion.
- Determine if the gradient requires berms to be constructed across the site from natural materials (stones, rocks, branches) to reduce the velocity of rain water and catch soil and reduce the chances of erosion.
- If vegetation was removed and stored, scatter this over the pit site as a mulch to hold soil and seeds, and help prevent erosion.
- Check with project geologist if a) seeding is to be done and if b) Eco-T is to be used.
- All equipment, fencing, fuel etc must be removed from site.
- All waste must be removed from site and disposed of at the appropriately licenced facility.
- Portable toilets must be removed and the contents disposed of at an approved facility.
- All tarpaulins must be removed from the site.
- Photograph the site, file information with date and note when first monitoring is due.

4 REHABILITATION OF FOOTPATHS, ROADS AND TRACKS

- Ensure all equipment, fuel, waste, tarpaulins etc have been removed from site.
- Place a natural barrier at the junction to the footpath/track/road being rehabilitated e.g. rocks to prevent further access.
- Remove any cemented strips on steep / loose slopes but create contour barriers in their place.
- Loosen compacted soil on tracks when track not needed again.

- If on a slope, reduce potential water erosion with contour barriers
- Check with project geologist if a) seeding is to be done and if b) Eco-T is to be used.
- Photograph rehabilitated footpath, track / road and update record.

5 USE OF ECO-T IN REHABILITATION OF DRILL AND PIT SITES AND OF PATHS / TRACKS.

5.1 General

- The use of a microbe called Eco-T can be beneficial in ensuring successful rehabilitation of prospecting sites. Eco-T will control root diseases, increase root side shoots and root hairs and also enhance plant growth. This effect is particularly noticeable under stress conditions. Eco-T is tried and tested and works well. It will help the seeds get established slightly faster and help the young seedlings handle any stresses such as drought (by a stronger root system).
- Eco-T must be stored in cool conditions preferably in the fridge. It has a shelf life of 6 months.
- When taken into the field it should be taken in a cool box, and should **NOT** be left standing in the sun.
- Eco-T may be used as a drench or a seed treatment.
- The optimum time to apply seed and microbes would be between October and December which is after the first rains and during the active growing season. If rehabilitation is done outside this time, seeding and the use of Eco-T should be postponed and done during the first monitoring period which falls between October – December.
- Discuss with botanist as to which seeds should be used for re-seeding.

5.2 As a Drench:

- Mix 1 heaped teaspoon (5g) of Eco-T in 20 litres of water.

a. Manual pit:

✓ Apply 10 litres of mixture over 1 manual pit area (9m²) using 5 / 10 litre watering can.

b. Small diameter drill site:

✓ Use 3 to 4 x 20 litre mixes per 64m² site using 5 / 10 litre watering can.

c. Footpath:

✓ 1 x 20 litre of drench mixture will do about 20m of a 1m wide path; double or triple the mixture for a vehicle track depending on width.

d. Large Diameter Drill Site or Mechanised Pit Site:

✓ A water cart filled with 700 litres of water to which 1 cup (175g) Eco-T is added will be adequate for a large diameter drill site or a mechanised pit site (625-750m²).

✓ Use spray attachment and wet site as evenly as possible.

✓ Photograph the site and update records.

5.3 As a Seed Treatment:

a. Manual Pit :

- Apply one heaped teaspoon (5g) of Eco-T to 1kg mixed seed in a plastic bag.
- Shake the bag to allow the Eco-T to stick to the seed.
- Carefully remove any stones, rocks or logs on the site and place to one side.
- Scatter 27g seed over disturbed ground of 1 manual pit as evenly as possible. Rake it over with a small rake or a branch with leaves on it to get some soil over the seed.

- Replace the stones, rocks and logs.
- Photograph the site and update records.
- 1 kg treated seed will be sufficient for 37 manual pits.

b. Small diameter drill Site (64m²) : Use 200g treated seed per site.

c. Large Diameter Drill Site or Mechanised Pit Site (625 – 750m²): Use 2 kg treated seed per site.

6 INVASIVE SPECIES CONTROL

- Newly created access roads, large diameter drilling and/or mechanised excavation sites will be monitored 12 monthly after rehabilitation, until prospecting right closure is obtained, to check for the appearance of invasive alien species.
- Any species present will be recorded and photographed.
- Some of the more common species likely to be encountered are *Acacia dealbata & mearnsii* (Back & Silver Wattle), *Pinus* species, *Eucalyptus* species, *Solanum mauritianum* (Bugweed), *Cestrum (*Inkberry)
  -

6.3 Confirmation of consultation

(Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties).

Consultation of the land owners has been done and a copy of this EMP will be made available to the land owner and other interested and affected parties who would like to study such a document. The closure objectives have been discussed with the land owners.

7 REGULATION 52 (2) (g): Record of the public participation and the results thereof.

7.1 Identification of interested and affected parties.

(Provide the information referred to in the guideline)

Interested and affected parties were identified as stipulated in the departmental guideline drafted in terms of regulation 16(4)(b) in respect of prospecting tight application as well as other related regulations for mining permit and right. The nearest community was identified as the interested and affected part or community and as a result, a notice of intention was sent to be placed on their local newspaper which can easily be accessed. The landowner has also been identified as the interested and affected party, hence the consultation negotiations are still taking place to ensure that a proper consultation process is undertaken and completed.

7.2 The details of the engagement process.

7.2.1 Description of the information provided to the community, landowners, and interested and affected parties.

The land owners were consulted and have not yet provided and comment or objection to the proposed project. The notice in terms of section 16(4)(b) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) has also been given local newspaper for advertisement. Any information that will be provided by the community, landowners, and interested and affected parties will be taken into considerations and forwarded to the DMR offices for considerations.

7.2.2 List of which parties indentified in 7.1 above that were in fact consulted, and which were not consulted.

The list cannot be provided at this stage, but it should be noted that the notice has been placed on advert by the local newspaper and the land owner's consultation is still in process.

7.2.3 List of views raised by consulted parties regarding the existing cultural, socio-economic or biophysical environment.

The consulted parties have not yet raised any issues regarding the above-mentioned factors.

7.2.4 List of views raised by consulted parties on how their existing cultural, socio-economic or biophysical environment potentially will be impacted on by the proposed prospecting or mining operation.

There are no concerns raised at this stage. Any information that will be received regarding this project will be submitted to the DMR offices and depending on the nature if information, a revised EMP can be submitted for consideration and further evaluation.

7.2.5 Other concerns raised by the aforesaid parties.

There are no concerns raised at this stage. Any information that will be received regarding this project will be submitted to the

DMR offices and depending on the nature if information, a revised EMP can be submitted for consideration and further evaluation. There are also no objections received to date and any objections received will be forwarded to the RMDEC for considerations.

7.2.6 Confirmation that minutes and records of the consultations are appended.

The records of consultations have been attached to this EMP as an annexure.

7.2.7 Information regarding objections received.

The information (i.e. names and ID numbers of the people who will be conducting prospecting activities of visiting the site will be provided beforehand to the land owners and inform them of the exact dates which they will be visiting the farms (prospecting area). The procedures referred to in this Environmental Management Plan are aimed to minimise the environmental impacts. These include measures to avoid polluting of the local water supply. The use of water from the farms will only be considered should approval be obtained from the department of Water Affairs and only if there is sufficient supply to allow the normal farming activities to continue.

7.3 The manner in which the issues raised were addressed.

There are no issues raised at this stage. Any issues or concerns that will be raised will be addressed in an appropriate manner following all necessary processes.

8 SECTION 39 (3) (c) of the Act: Environmental awareness plan.

All employees will undergo an induction course when they are employed at the prospecting area and an annual refresher thereafter. Environmental awareness forms part of the induction course. The following syllabus of environmental training is to be included within the induction course:

1. Discuss the concepts of sustainability which must include:

   - Definition of sustainable development – "development that meets the needs of the present and the future generation without compromising the ability of future generation to meet their own needs".

- ❖ An explanation of the "*Triple Bottom Line*" of sustainable development; i.e. balancing environmental, social and economic factors.
- ❖ An example of sustainable developments. These should be selected based on the audience, selecting a development that they can relate to.

2. Discuss the latest specific environmental goals and objectives and the benefits of achieving such goals. As these goals change the induction course must be updated accordingly. Where possible the goals and objectives covered should be selected on the basis of topics that personnel can relate to. These could include, but are not limited to the following:

- ❖ <u>Concurrent rehabilitation</u>
  - o *Goal:* Rehabilitate mined out areas concurrently (where practical)
  - o *Objective:* To ensure that all mined out areas are concurrently rehabilitated. The close corporation will aim to 100% concurrent in terms of rehabilitation.
  - o *Benefits:*
    - Reduce the costs of final rehabilitation
    - Reduces the time to implement final rehabilitation and to obtain a closure certificate.
    - Improve the ecological status of the site.
    - The more surface rehabilitated the less chance of dust and erosion from the exposed surfaces.
    - Increases the aesthetical appeal of the prospecting area.

- ❖ <u>Waste minimisation</u>

- o *Goal:* Reduce waste generation and recycle and re-use where possible.
- o *Objective:* To initiate recycling project where possible.
- o *Benefits:*
  - Reduction of waste and promotion of recycling reduces the economic and environmental costs of dealing with waste.
  - Recycling reduces the need to use non-renewable resources, ensuring that these resources will be available for future generations.

- ❖ <u>Reducing amounts of hydrocarbon spillage</u>
- o *Goal:* Reduce the amounts of hydrocarbon spillages and the impact from spillages that occur.
- o *Objective:* To initiate recycling project where possible.
- o *Benefits:*
  - Saving oil reduces the need to use non-renewable resources.
  - Reduce the potential for soil contamination.
  - Reduce the potential to pollute the ground water.

3. Concepts surrounding the living of a sustainable lifestyle , that can be implemented both at work and at home should be discussed. This could include, but are not limited to the following:

   ❖ Save water
   - o Close or turn the tap off when not using water, e.g wile brushing your teeth
   - o Only water gardens or crops when necessary and not during the heat of the day (between 10am and 3pm).

   ❖ Save electricity
   - o Use energy efficient light bulbs.
   - o Do not leave the lights on when not required
   - o During cold weather, close doors and cover windows to keep the heat in the house

   ❖ Waste-Reduce, Re-use and Recycling
   - o Recycle where possible
   - o Collect used oil for recycling

4. Questions/comments

   After undergoing training the employees will be requested to sign a register of proof of training.

8.1 Employee communication process

(Describe how the applicant intends to inform his or her employees of any environmental risk which may result from their work).

Environmental awareness of the employees will be provided by implementing the environmental awareness training in the following forums:

- Monthly meetings
- Induction courses (annually)
- Training from an environmental consultant (every two years)

It is important to note that the environmental awareness programme is a living document and should be reviewed regularly to ensure that relevant environmental concerns are discussed and the potential impacts of such concerns are minimised. The syllabus to be taught to employees has been determined through identification of the major environmental concerns raised in the impact assessment of this report.

Monthly meetings: Monthly meetings are ideal to facilitate awareness of job-specific environmental dangers and to educate employees as to how they can live a more sustainable lifestyle outside work.

Induction training: All employees will undergo an induction course when they are employed by the mine and an annual refresher thereafter. Environmental awareness forms part of this induction course. After

undergoing training the employees will be requested to sign a register of proof of training.

Environmental training from an environmental consultant: Every two years, a qualified environmental consultant will be employed to undertake an environmental performance of the operation. As part of the terms of reference to the consultant, the consultant will inform the employees of his/her findings and provide tips of reducing some of the environmental impacts noted. The employees will be requested to sign a register of proof of training.

8.2 Description of solutions to risks

(Describe the manner in which the risk must be dealt with in order to avoid pollution or degradation of the environment)t.

The above-set measures will be adhered to ensure prevention of risky situations during prospecting operation. Each activity and associated risks is linked in aspects and impacts register to relevant procedures to prevent pollution and other significant impacts. The compliance to the procedures is the duty of all staff and contractors. This is monitored by supervisors and reported to the management team as well as environmental officer.

8.3 Environmental awareness training.

(Describe the general environmental awareness training and training on dealing with emergency situations and remediation measures for such emergencies).

The environmental awareness training will comprise of the following:

- General induction to the environmental management system including the aspects and impacts register
- Activity specific induction, based on procedures, including emergency response on spill handling (use of spill kit etc)
- On site confirmation of these procedures, with demonstration of requirements. Periodic awareness section(toolbox talks) on safety, health and environmental topics.
- The table below will also form part of the training sessions.

ASPECT	COMMITMENT AND TRAINING ASSESSMENT
1. Pollution control and Waste Management	Avoidance of waste generation at source, minimisation, re-use or recycling
	Proper waste disposal
2. Air Quality Management and control	Use of machinery such that pollution is kept to a minimum, if possible
3. Fire Prevention	Proper disposal of iron and other flammable stockpile.
	Fire response mechanisms.
4. Noise Management and control	Keeping noise levels to a minimum

5. Blasting, vibration and shock management and control	Time, duration and date of blasting, suitable weather conditions.
6. Water management and pollution control	Proper handling of waste, especially hazardous waste.
7. Disposal of Waste material	Proper disposal of waste, especially hazardous waste.
8. Soil pollution and erosion control	Proper handling of greases, hydraulic fluids etc, minimising spillage into soil, revegetation.
9. Sanitation of surface	Use of sanitation facilities and proper hygienic and aesthetic standards.
10. Granite off cuts and related waste	Recycling, crushing and disposal of granite off-cuts.
	Rehabilitation of land.
11. Management of residue stockpiles and deposits	Characterise stockpile to identify any potentially significant health or safety hazard
	Identify other suitable sites for disposal.
	The design and construction of residue stockpile according to specifications.
	The monitoring of residue stockpiles and deposits continuously to ensure ongoing pollution control, integrity of rehabilitation, health and safety.
	The decommissioning, closure and post closure management of residue deposits as addressed in the closure plan.

9 SECTION 39 (4) (a) (iii) of the Act: Capacity to rehabilitate and manage negative impacts on the environment.

9.1 The annual amount required to manage and rehabilitate the environment.

(Provide a detailed explanation as to how the amount was derived)

Potential Impacts	Annual Management & Concurrent Rehabilitation Cost	Final Rehabilitation Costs
Noise pollution	R6 000.00	R1 000.00
Erosion	R8 500.00	R2 000.00
Water pollution	R10 000.00	R2 000.00
Waste material	R3 000.00	R1 000.00
Soil pollution	R8 000.00	R2 000.00
Oil, grease, diesel, acid or hydraulic fluid spillages	R14 000.00	R2 000.00
Air pollution	**R6 000.00**	**R1 500.00**
Revegetating	**R2 000.00**	**R1 000.00**
TOTAL	**R67 500.00**	**R12 500.00**
GRAND TOTAL		**R80 000.00**

9.2 Confirmation that the stated amount correctly reflected in the Prospecting Work Programme as required.

It has been stated in the prospecting work programme that an amount of **R80 000.00** will be set aside for rehabilitation purposes. The applicant will provide **R80 000.00** for rehabilitation purposes to ensure that any unanticipated environmental impacts are catered for.

10 REGULATION 52 (2) (h): Undertaking to execute the environmental management plan.

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises EIA and EMP compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard, and the applicant undertakes to execute the Environmental management plan as proposed.	
Full Names and Surname	**Mr. D.B. MNGANGA**
Identity Number	631114 5591 082

-END-

ANNEXURE A

TANTOBEX PTY LTD
P.O. Box 1390
Magalies View
2069

Dear Sir

Agenda: NOTICE TO THE LANDOWNER/LAWFUL OCCUPIER IN TERMS OF SECTION 16(4) (B) OF THE MINERAL AND PETROLEUM RESOUCES DEVELOPMENT ACT, 2002(ACT NO 28 OF 2002)

Tantobex(Pty) Ltd has lodged an application for a prospecting right at the Department of Mineral Resources in the Northern Cape, KurumanDistrict in respect of the following properties indicated below of which you are the lawful owner:

(CURTIS 470, PTN 1)

We attach a copy of the notice to interested and affected parties to enable you to submit your comments and concerns on the proposed prospecting activities.

Yours sincerely,

Ezra Nkosi
Geologist
SubSahara Resources
Discover - Opportunity
Mining & Exploration Capability Partner
st Floor, Stoney Ridge Office Park, Kieve Hill Park, 2191;
PO Box 1390 Magalies View, 2069
email: nkosi.ezra@gmail.comORnkosie@subsahararesources.com
cell: ++27 76 604 8070

TANTOBEX PTY LTD

Reg No: 2011 / 131626 / 07

NOTICE TO THE LANDOWNER/LAWFUL OCCUPIER IN TERMS OF SECTION 16(4) (B) OF THE MINERAL AND PETROLEUM RESOUCES DEVELOPMENT ACT, 2002(ACT NO 28 OF 2002)

Farm name	Province	Magisterial Distict	Farm Subdivision Number	Reference
Curtis 470	Northen Cape	Kuruman	Ptn's 1 and 2	NC 30/ 5/ 1/ 1/ 2/ 10331 PR

This communique serves to inform you about the intentions of **Tantobex Pty Ltd** to prospect for **Manganese and Sugilite** on theabove mentioned farms. You have been identified as an interested and affected party (I&AP) in the project and the purpose of this letter is therefore to:

- Inform you of the developments on the prospect area.
- Give you an opportunity to raise any concern you might have in respect of the prospecting activities.
- Incorporate your concerns in the Environmental Management Plan (EMP). The EMP is a legal requirement for all prospecting activities and has to be approved by the Department of Minerals and Resources (DMR).

Any of the following exploration methods may be employed:

- Orientation
- Ground Gravity Survey
- Geophysics interpretationof the prospective areas.
- Ikonos High Resolution Imagery System application

None of these methods should have any significant impacts to the environment. Ground gravity surveys will be conducted on foot using a hand-Bourne gravity gradiometer. Drilling operations will be localized, either target-directed or along selected profile lines and further drilling will only take place if any positive results are obtained during the first drilling phase.

You are requested to submit your concerns (if any) and register as an interested and affected party in this project by way of filling the accompanying reply slip which will be forwarded to you by responding to the email addresses indicated below. This consultation process is important as it raises your awareness about the nature of operation and allows you to raise any positive and/or negative concerns you might have about the work. Your concerns will then be investigated further as part of the environmental impact study to determine their impacts, management measures will then be developed to address these impacts.

The results of this consultation process will be included in the EMP document, which will be submitted to the DMR as part of the application for approval of the drilling activity. You will be notified of the record decision by the DME once it is issued.

Tantobex (Pty) Ltdis committed to complying with the conditions, which the DME will stipulate concerning the management of the environmental impacts on the site during the prospecting exercise.

Please submit your comments and concerns by the date shown on the reply sheet which will be forwarded to you, either by fax or email once you have responded.

Contact person:
Ezra Nkosi
Fax: 086 590 7324
Cell: 076 604 8070

E-mail: nkosie@subsahararesources.com

or

nkosi.ezra@gmail.com

REPLY SLIP: KINDLY COMPLETE AND RETURN BY Date: 29th MARCH 2012

ATTENTION: EZRA NKOSI
FAX: 086 590 7324
Email: nkosi.ezra@gmail.com OR nkosie@subsahararesources.com

Name	Surname	Farm name	Farm Portion
Herdit	van der Merwe	CURTIS 470	PTN 1
Size of farm(ha)			
Telephone	**Fax**	**E-mail**	**Cell**
0798900715		herditvdMerwe@vodamail.co.za	
Record your comments here: N/A.			
Signature:			

Name of person whom you think is an affected party

Name and surname	N/A.	N/A.	N/A.
Farm name and portion			
Tel			
fax			
address			

We thank you for your co-operation

ANNEXURE A

TANTOBEX PTY LTD
P.O. Box 1390
Magalies View
2069

Dear Sir

Agenda: NOTICE TO THE LANDOWNER/LAWFUL OCCUPIER IN TERMS OF SECTION 16(4) (B) OF THE MINERAL AND PETROLEUM RESOUCES DEVELOPMENT ACT, 2002(ACT NO 28 OF 2002)

Tantobex(Pty) Ltd has lodged an application for a prospecting right at the Department of Mineral Resources in the Northern Cape, Kuruman District in respect of the following properties indicated below of which you are the lawful owner:

(CURTIS 470, PTN 2)

We attach a copy of the notice to interested and affected parties to enable you to submit your comments and concerns on the proposed prospecting activities.

Yours sincerely,

Ezra Nkosi
Geologist
SubSahara Resources
Discover - Opportunity
Mining & Exploration Capability Partner
st Floor, Stoney Ridge Office Park, Kieve Hill Park, 2191;
PO Box 1390 Magalies View, 2069
email: nkosi.ezra@gmail.comORnkosie@subsahararesources.com
cell: ++27 76 604 8070

REPLY SLIP: KINDLY COMPLETE AND RETURN BY Date: 29th MARCH 2012

ATTENTION: EZRA NKOSI
FAX: 086 590 7324
Email: nkosi.ezra@gmail.com OR nkosie@subsahararesources.com

Name	Surname	Farm name	Farm Portion
Aubrey	Meriz	CURTIS 470	PTN 2
Size of farm(ha)			
Telephone	Fax	E-mail	Cell
			083 300 6984.

Record your comments here:

Sal laat julle weet, Sarah
ek met my prokureur
gereel het.

Signature:

Name of person whom you think is an affected party

Name and surname			
Farm name and portion			
Tel			
fax			
address			

We thank you for your co-operation