8 November 2013

Conservation Council SA

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**RE: Rex Minerals (SA) Pty Ltd Hillside Project**

Dear Mr Howe,

The Conservation Council of South Australia appreciates the opportunity to comment on this mine and related infrastructure proposal.

Conservation Council SA is an independent, non-profit and strictly non-party political organisation representing around 50 of South Australia's environment and conservation organisations and their members. Conservation Council SA has developed a comprehensive view of environment policy in *South Australia in a Changing Climate: A Blueprint for a Sustainable Future*[1] This document sets out, at a strategic level, policy positions in six key environmental areas, including biodiversity and planning issues.

Our objective in this submission is to ensure that key aspects of the environment are protected, that unambiguous commitments to the sustainability of South Australia are defined, and that there is an adequate level of disclosure and transparency in reporting against the requirements of a future Program for Environmental Performance and Rehabilitation (PEPR).

[1] http://www.conservationsa.org.au/blueprint.html

**Native vegetation and habitat restoration**

Disturbance to native vegetation is identified in several areas, one up to a hectare in size, and also along the roadside for several kilometres which will be buried under the rock storages and Tailings Retention System. This is unfortunate and will require a significant environmental benefit (SEB) offset which is acknowledged. The Conservation Council SA suggests that the effort in creating this offset be undertaken in accordance with regional NRM objectives and needs. In particular it should take into consideration the need for larger interconnected areas of the landscape to be restored. In addition, there are small populations of southern hairy-nosed wombats on Yorke Peninsula, some of which are diminishing towards local extinction. Efforts to assist in the plight of some of these populations in parallel with creating offset areas and in a way that also does not create additional competition with farming communities would be welcome.

**Tailings Storage Facility**

There should be greater acknowledgement of the potential of birds being attracted to the liquid tailings storage facility. Whilst it is hoped that the solution will not be excessively acidic, corrosive or toxic to birdlife, no assurance or contingency plan is provided. There is a tendency for entrapments in liquid tailings to be underestimated at design, and then under-monitored and under-reported. Rex Minerals should provide an absolute assurance that all fauna entrapments at the tailings storage facility, and across the site, will be reported annually under the PEPR. Should there be any continuous entrapments, as has happened with the Olympic Dam Mine tailings retention system, then there should be a commitment that operations will cease until effective corrective measures are implemented.

There is little assurance that a clay foundation and embankment walls will prevent significant leakage of the tailings storage facility. History shows that such designs end up failing, in which case it becomes very difficult to retrofit linings to prevent leakage. Given that significant volumes of water are to be re-injected into groundwater systems for disposal, stakeholders need to be assured right from the start that this system is not designed or built to leak as an additional method of liquid disposal, particularly where it could affect nearby farmland.

**Rock Storage Facility**

The area of the rock storages shown on page 6-96 is shown in square metres. Typically areas of land are better described in hectares because that is what people can relate to. So rather than show a footprint of 12,458,673 square metres, such a description should be simply described as being around 1200 hectares, which is a considerable size just for the rock storages. Furthermore, the total footprint of the three areas listed in Table area shown in Table 6.7.1 actually adds up to 1435

hectares rather than 1200 hectares, unless we are mistaken in how the table should be read.

Dust Pollution

Dust pollution has been identified as an issue of concern by our members.

It is important that the control measures are fully described and assurances provided to control the risk of contaminated dust moving off-site.

**Mine Closure Plan**

The Conservation Council SA cannot accept that there is a mine closure and rehabilitation strategy when the open cut mine extending 2km long, 1km wide, and around 450m deep is not going to be filled in to at least the final stable ground water level. For a mine that has a useful life of a little more than a decade, it is simply unacceptable to create another open, deep, toxic lake that will remain a hazard to people and fauna for ten thousand years or longer. Putting a fence around the pit is grossly inadequate.

Furthermore, we are concerned that this project is just one of potentially dozens of new open cut mines that could be proposed in South Australia in the next few years. It is important that such mines are properly rehabilitated in South Australia (including with the open pits filled in to above the final ground water level) to prevent a cumulative legacy of abandoned open cut deep toxic lakes.

It was not possible to determine with the information provided how the pit fill up time (with water) could be as slow as suggested. Upon mine closure, with natural inflows of around 150 litres per second at the estimated volume of the pit, it seems that the pit would fill much faster. To understand how the consultants came up with a number of around 500 years we would need more data, including the modelled pit volume, whether the recharge rates are diminished after the initial years, and a post-mining operations water balance that shows the key flow assumptions.

**Climate change, greenhouse gas mitigation, and electricity use.**

Electricity use and GreenPower

The proposal makes no mention of South Australia's Strategic Plan targets for reducing greenhouse gas emissions, nor does it make any credible efforts to support renewable energy or offset emissions that this project will cause under section 6.10.2.4 Zero Emission Energy and Carbon Offsets Opportunities.

Rex Minerals should be thoroughly ashamed of making superficial greenwash statements such as "Rex will explore the use of existing and potential wind power as appropriate opportunities arise".

The first point that the Conservation Council SA will make in regard to Rex Minerals taking responsibility for greenhouse gas emissions is that just because wind farms might be established and growing in the area, does not give any right for Rex Minerals to claim such efforts as an achievement for this mine. Rex Minerals must take steps to contribute to such efforts in contracts before such a claim could be possible.

The second point is that Rex Minerals does not need to wait for opportunities, as it can initiate to enter power purchasing agreements (PPAs) that include GreenPower. We expect that if companies are serious about reducing emissions and contributing to a low-carbon and sustainable South Australia, that they will put their best GreenPower commitment forward. Whether it be 20%, 50%, or any percentage at all, that must be defined.

Given that this project will be using 583,000 MWh/year, the demand is large enough to have a material contribution to further renewable energy development in South Australia. There are existing concepts, such as the Repower Port Augusta proposal for large-scale concentrated solar thermal with storage combined with wind resources, that are dependent on the resources and industrial sectors stepping up to the challenge with a willingness to enter PPAs to help make these projects feasible.

Rex Minerals has the opportunity to make a positive contribution to a sustainable energy future if this project proceeds.

The greenhouse impact of electricity use is larger than the component that must be acknowledged under NGER Reporting. It is apparent from the greenhouse gas emissions associated with electricity use that Rex Minerals has used only the scope 2 emissions factor. Rex Minerals should use both the scope 2 and 3 components of emissions associated with electricity use (as per the 2012 NGA Emission Factors) in defining the greenhouse impact of the project.

Please define the greenhouse reduction commitment that Rex Minerals will make in relation to its electricity use, and note that it is unacceptable to make greenwash statements about exploring future opportunities.

Carbon offsets

Accredited carbon offsets are best suited to offset non-electricity emissions such as diesel use. We would also welcome any clear commitments that Rex Minerals chooses to make to offset a proportion of its non-electricity emissions.

**Proximity to Gulf St Vincent**

The open pit appears to be approximately 1 km from the sea. The groundwater in the pit zone currently is highly saline and the groundwater elevation level is not dissimilar to mean sea level. None of the cross sectional diagrams of the pit show this proximity, nor does the document provide an assurance that there is not a risk of direct flow from the sea through fractured rock when the pit is dug to hundreds of metres below sea level. The document does make reference to 'self healing' conditions due to clays etc, but does not indicate how quickly 'self healing' may take place following any geological events, including any minor seismic activity potentially triggered by digging the pit and removing groundwater.

In relation to other potential impacts on Gulf St Vincent, we have received some concerns from member groups. It would be useful to have an expanded discussion with Rex Minerals on coastal or marine environmental impacts generally.

Of particular concern is the copper content. Although copper is an essential element for both plants and animals, it is only required in small amounts and is toxic in higher concentrations. Copper is readily bio-accumulated in plants and animals (ANZECC 2000). Greater assurance is required that the following impacts will be avoided:

- Damage to the physiology of fishes (including the gills, and olfactory sense);
- Mortalities among marine invertebrates, fishes and algae, particularly if exposed to copper;
- Potential reduction in biodiversity in coastal marine sites;
- Reduction in seagrass cover;
- Sedimentation; or
- Concentration of metals in filter-feeding organisms.

It is requested that leakage estimates are quantified.

**Impact of salinity**

It is unclear as to what longer-term impacts the disposal of highly saline water will have across the site after 15 years. If water of salinity of around 10 grams per litre is discharged across the various suppression and disposal activities, a total site estimate of the salt released should be provided.

**Process Water Balance**

Section 6.6.4 describes that a total surplus of water of 504 tonnes per hour will be reinjected into aquifers. Little information is provided on how or where exactly this will occur, at to what depth, and what potential impacts in might have. Given a total surplus to be reinjected 504.2 tonnes per hour represents around 4,400 ML per year, this will be a significant challenge for disposal in any borefield.

I would be happy to discuss our submission in more detail.

Kind regards

Tim Kelly

Chief Executive