EPA VICTORIA

VICTORIA State Government

AMENDED NOTICE.

ENVIRONMENT PROTECTION ACT 1970 SECTION 22

TO:	**ILUKA RESOURCES LTD** **(ACN: 008 675 018)**
OF:	**LEVEL 23, 140 ST GEORGE'S TERRACE** **PERTH, WESTERN AUSTRALIA, 6000.**

WHEREAS an application by you for a works approval in respect of premises situated at Pit 23 of the Douglas Mine Site (Crown Allotments 91, 94, 95 and 96 in the Parish of Telangatuk), Victoria was received by the Environment Protection Authority ("the Authority") on 23 JUNE 2015

AND WHEREAS a Notice was issued under S22 (1)(a) of the Act on 11 September 2015 requiring you to supply to the Authority information we considered necessary and relevant to the application as set out in "Attachment A" of that Notice

NOW TAKE NOTICE that the Authority **HEREBY AMENDS** the Notice dated 11 September 2015 to require you to supply to the Authority by 4.00pm on the 22 day of February 2016 the information we consider necessary and relevant to the application as set out in "Attachment A" of this Notice *in lieu* of the information as set out in "Attachment A" of the Notice dated 11 September 2015.

DATED: **11th February 2016**

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TIM FARAGHER
DELEGATE OF THE
ENVIRONMENT PROTECTION AUTHORITY

ATTACHMENT A

Understanding the Baseline Environment

The following requests are made:

(a) An overarching Groundwater Report that pulls together all of the baseline groundwater data and characterises it in one location (with supporting appendices of relevant reports and data), that specifically includes:

1. The interpreted results, including the groundwater levels and physicochemical analysis of the groundwater collected from a further round of groundwater monitoring currently underway - the samples to be collected in accordance with EPA Publications 668[1], 669[2]and IWRG 701[3] for the collection of groundwater samples and the data to be presented in Excel format);
2. Provision of slug test data to confirm the hydraulic connectivity/aquifer permeability parameters used in the hydrogeological modelling and thereafter updated analysis and (if considered necessary by EPA) additional modelling in points 3, 4, 5, 6, 7 and 8 below to take into account any revisions to the parameters;
3. Updated analysis to include groundwater monitoring currently underway to confirm the presence or absence of a migratory relationship between Pit 22, Pit 23 and the Glenelg River;
4. Updated analysis to include groundwater monitoring currently underway to understand and demonstrate that groundwater mounding around Pit 22 and Pit 23 is localised;
5. Provision of the purpose of and objectives of a proposed groundwater monitoring and management program to be implemented to confirm the accuracy of the modelling and provide an early warning system to any future issues that may arise, such that suitable measures could be undertaken to prevent harm occurring to receptors and beneficial users;
6. An investigation of groundwater flows and hydrogeochemistry at the Site, and around the groundwater sink of White Lake in the form of mass balances (giving consideration to variation in permeability) and to include consideration of the results of the groundwater monitoring currently underway;
7. Provision of updated analysis with the groundwater monitoring currently underway and assessment of the results of the leach testing and solubility analysis of the identified waste streams to be deposited into Pit 23 within the consideration of the mass balance work on White Lake; and
8. Updated consideration and discussion of the Site, regional groundwater chemistry and potential for enhanced mobility of solutes in light of the results of the groundwater monitoring is required.

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[1] Hydrogeological assessment (groundwater quality) guidelines EPA Publication 668 (EPA 2006)
[2] Groundwater sampling guidelines EPA Publication 669 (EPA 2000)
[3] Sampling and analysis of waters, wastewaters, soils and wastes IWRG 701 (EPA 2009)

(b) A geomorphological assessment including empirical data collection to confirm the actual erosional rate at the Site and validity of the assumed erosional rate.

Defining the potential impacts to the Receiving Environment

The following requests are made:

(a) That with the overarching Groundwater Report it specifically includes:

1. A review of hydrogeological flow modelling and potentially updating (dependent on the analysis of the groundwater monitoring currently underway and the update of inputs into the modelling as required in the tasks above) to better understand the baseline to include further analysis of the potential impacts on White Lake with solute calculations and a mass balance of the percentage change in hydrochemistry with and without Pit 23 disposal activities;
2. Updated consideration of the groundwater flows in the short term period of groundwater mounding in the vicinity of Pit 23 (i.e. while the pit is open – say for another 5-10 years) following an analysis of the results of the groundwater monitoring currently underway;
3. The temporal extent of the solute transport modelling and assessments needs to be increased to consider long term stability i.e. 50,000-100,000 years; and
4. Updating of the solute transport modelling to include longitudinal dispersal modelling, the results of further groundwater monitoring undertaken and reconsidered assumptions and input data within the modelling.

(b) Submit the principles of the proposed surface water management plan in a discrete identifiable document or section. This must consider different trigger points within the disposal activities and rehabilitation including the water balance modelling proposed and water management systems which are likely to be implemented; and include objectives of the plan, its goals, responsibilities, links to the Geomorphological Assessment (soil erosion and stability assessment) and Rehabilitation Plan, water quality protection mechanisms, surface water monitoring, surface water management responses, reporting and feedback review; and

(c) Develop and submit the principles of and an outline of a decommissioning plan, including specifications of relevant mining standards to be met in a discrete identifiable document or section.

Demonstrating Environmental Best Practice

The following requirements are made with regard to the selection of Pit 23 as the disposal site and the proposed containment options:

1. The detailed option study referred to in subsection 2.2 of the Works Approval application;
2. Provision of a detailed comparative assessment of the environmental impacts of by-product disposal at other Iluka (current) operating (or former mine) sites in Victoria, in particular to substantiate statements in subsections 2.2.3 and 2.3 of the Application for

Works Approval document that 'there is no reason to believe that those [environmental] impacts [at other operating sites including the possibility of a new depository facility close/to at the source of the waste (the Hamilton Mineral Separation Plant)] would be any less' and or disposal at Pit 23 is 'equal or [a] better option than others available from the point of view of environment impact';

3. Provision of further information to demonstrate that the proposed by-product practice is in line with Mineral Sand Industry best practice;
4. Consideration and discussion of the appropriateness of the continued disposal of waste by—products in Pit 23 in particular that it will not unacceptably increase risk of any off-site impacts;
5. Consideration and discussion of the appropriateness of the proposed containment measures in particular with consideration of the feasibility of lining Pit 23;
6. Provision of a pre-settlement contour plan and final cap design showing the top of waste and cap that is not to be exceeded as well as greater information on the proposed surface water management, rehabilitation and revegetation proposed to ensure there is adequate surface binding to prevent erosion of the capping layer, penetration of the cap and subsequent emission; and
7. Consideration of alternative final landforms, such as a flat or a shallower slope (than the 1:30 and in parts 1:10) to further reduce long term potential erosion of the cap within the geomorphological assessment requested above.