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ABN 11 605 427 478

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ACN 600 326 261

Shareholder News March 2022

Dear Shareholders,

We are definitely living in 'interesting times', and unexpected conditions and circumstances continues to be the norm. The last four months has certainly been very interesting - and extremely busy and productive as we continue to build the Lava Blue IP and critical minerals portfolio despite headwinds and obstacles.

- ***HPA Listed by Federal Government as Critical Mineral***
- ***Update on Mini-Plant at Redlands – Solar Powered Science***
- ***Collaborations – Vecco, QPM, Clough***
- ***Exploration and Minerals Development Program***
- ***Fund Raising and Grants***

HPA Listed as a Critical Mineral

On March 16 the Department of Industry Science Energy and Resources in Canberra released the 2022 edition of the Australian Critical Minerals Strategy in which, for the first time, High Purity Alumina and Silicon, have been included on the list of 26 elements deemed critical for the energy transition.

The report can be downloaded from this link - [2022 Critical Minerals Strategy | Department of Industry, Science, Energy and Resources](#).

Underlining how central the development of sovereign supply chains for battery manufacturing has become to Government policy, on March 15 the Prime Minister announced four grants under the Modern Manufacturing Initiative for critical minerals developers totalling more than \$240 million. These grants included a \$45 million grant to Alpha Alumina's proposed 10,000 tonne per annum HPA plant in Gladstone. This is probably the most advanced proposal for any HPA manufacturing in Australia, although Alpha has not yet made a final investment decision to proceed with their proposed nearly \$400 million plant.

Lava Blue has a number of grant applications that have been lodged seeking support for the operation of the HPA mini-plant, including applications to one of the Federal Government's Critical Minerals funds.

We also have bids in under the Australian Research Council and as a cornerstone member of a new CRC that is being established as the successor to the Innovative Manufacturing CRC from which we are still receiving monthly contributions of more than \$65,000 in grant funds. The IMCRC grant ends on September 30 this year and the applications we have been submitting are for new grants to support operations at the mini-plant to commence in October. I promise you will be the first to hear should any of our current applications be successful!



Lava Blue Special Purpose Materials Research Facility

Despite delays we are systematically ticking off the list of tasks required for completion of the HPA mini-plant and are planning commissioning of systems to start in June and July. The 27th of July will mark one year since we hosted the Queensland Minister for Agriculture, The Hon David Furner, at Redlands to inspect what was then basically a greenfields site.



Lava Blue Special Purpose Materials Research Facility is progressing rapidly towards commissioning

Some materials and pieces of equipment are taking longer to import or fabricate than anticipated. Certain plastics for instance ended up taking 25 weeks to arrive as compared to an original estimate of 6 – 8 weeks when ordered. Some metal products we need have been moved onto restricted materials lists and now need export certificates from countries of origin.

Australian based suppliers of equipment and services are also reporting delays while they struggle to secure components and materials. Shipping containers have been in short supply, at least at ports where we wanted to ship from, so we have ended up buying some.

The shortage of tradespeople in SE Queensland has progressed from acute to extreme since the early March flooding. Lava Blue has commenced a range of works on its own account employing long term contractors and shareholders Shane Matchett, Des Broom and others who we have worked with in the past. Our team are working to complete structural steel work, remaining concreting, civil works and installation of clean rooms, a mezzanine floor above the laboratory and raised platforms for installation of air handling equipment.

Last pieces of internationally supplied equipment are scheduled to ship before the end of April with likely delivery in mid to late May. The HCl gas reticulation system is being designed and installed by BOC and has reached final design stage and is expected to be completed by the time the last pieces of imported equipment arrive. The HCl gas cylinders, fabricated in Poland have arrived in South Korea for filling and the first consignment will be in Brisbane before the gas reticulation system is complete.

The early March extreme rain events in Brisbane were instructive and were a tremendous endorsement of the detailed and thoughtful planning we have applied to the design and construction of this cornerstone asset for Lava Blue. Despite having natural streams and water storage all around our site, the facility itself was essentially unaffected by the torrential downpours experienced between Feb 28 and



March 3. Our Brisbane based contractors visited the site regularly throughout the floods and have since made improvements to drainage design and flood diversion around the site to make it even more secure.



Some larger pieces of equipment have started to be put in place.



Internal fit out of electrical and data services have commenced prior to construction of the internal clean rooms followed by lay out of piping runs to connect major reaction vessels.



The 440 sq mt, 6 mt high structure is insulated and has passive solar design features to reduce heat load in summer. Set in a greenfields area of the Redlands Research Park workers have sighted koalas in the forest immediately around the site.



The tank farm both helps manage the significant water catchment of the >500sq mt roof as well as provide rain water for use in process and cooling water.



Left to Right – Sylvia Tulloch and Michael McCann from Lava Blue, accompanied by Professor Ian MacKinnon, Michelle Gaines and Assoc Professor Sara Couperthwaite from QUT inspecting the HCl Gas Scrubber at Redlands while discussing options for installation of a 200kW solar power plant at the facility.

Solar Powered Science

We are very pleased to report that a separate QUT based industry collaboration for demonstration of renewable energy systems has offered a once off \$350,000 capital grant to Lava Blue in exchange for Lava Blue installing 200kW of photovoltaic panels at the Redlands facility.

This is a significant amount of power and on a sunny day will be producing more than our power requirements. Lava Blue will have to spend possibly a further \$60,000 to \$80,000 on electrical design, inverters and control electronics and steel structures to mount panels on. Close to half of the 200kW array is likely to fit on the steel building and on the roof of the office and meeting rooms. To accommodate the other 100kW Lava Blue will install steel frames over the top of carparks, workshop, storage areas and walk ways.

We intend to proceed immediately with design and planning for this system and aim to have it powering the site prior to the end of the calendar year. Following commissioning of the system Lava Blue only has to provide one minute power production data for two years as its part of the agreement. Lava Blue will own and manage the system.



We had always intended to install solar power on site and have designed the site to maximise the 'solar platform' of the buildings. With the capital grant provided by QUT we will bring forward the installation of solar power as the the electricity cost savings to the Company are expected to pay back the our cost of design and installation in under 2 years.

Once the design and costing of the solar power plant has been completed, in a second phase of work Lava Blue will seek support for installation of a significant battery on site to provide load management and deliver uninterruptible power services, replacing the diesel generator that is presently required for that function.

This sort of support and the interest we are attracting for our work at Redlands underlines once again how much our longstanding collaboration with QUT and the Research Facility are major company assets that will generate a stream of valuable intellectual property and facilitate important commercial partnerships.

Everything we develop and learn at this facility, from environmental monitoring to materials of construction, product handling methods and quality control procedures translate directly to reduced risks and reduced costs of commercial production of high value, high purity materials.

Other Collaborations

Lava Blue believes that the size of the market and the demand factors driving growth for HPA, and the various HPA products that will be needed, supports the Company being a primary producer of HPA using its raw Lava Plains kaolin, as well as licencing its technology to other producers.

Vecco Group

As part of the Company's program of developing prospective licensees for the Lava Blue HPA process, in October we signed a Memorandum of Understanding with Vecco Group (<https://veccogroup.com.au/>) a Queensland based developer of Vanadium battery systems who have a significant vanadium mining and processing operation being planned at Julia Creek in North Queensland.

Initial material provided by Vecco has been characterised in the laboratory and an approach to the production of HPA from the aluminium rich waste stream has been agreed. Importantly the initial assessment identified other potentially economically recoverable minerals in the waste liquor and Lava Blue and Vecco have agreed to investigate methods of recovery of these other minerals as well.

This work should have relevance to any other vanadium producers who plan to refine vanadium from the extensive vanadium deposits hosted in the Toolebuc formation in North Queensland.

Queensland Pacific Metals Ltd

The work with QPM has progressed through the first two stages of laboratory processing and a set of conditions have been agreed with QPM to process their material to HPA. First HPA production from QPM material is underway as I write. This work should have broad application to a number of other mineral processing operations.

Clough Group

During 2021 we were approached by representatives of Clough Group who were attracted by both our engineering philosophy and business model.



We are pleased to announce that a broad term sheet has now been completed that sets out the intentions of the parties to conduct detailed assessments of opportunities to collaborate. While this work is at an early stage, Clough intend to conduct due diligence investigations into the Lava Blue technology and studies of HPA production and markets. This is expected to be a 6 month process that is intended to define a structure for a long-term alignment of interests. Lava Blue's objective in developing this relationship is to further reduce the risks of scaling up production to commercialisation while adding significant value to the effort and investment by Lava Blue. Stay tuned.

For more information on Clough refer: <https://www.cloughgroup.com>.

Sovereign Battery Manufacturing Capability

Lava Blue is developing relationships with a number of important participants in the rapidly developing critical minerals supply chain in Australia. Various efforts to establish battery manufacturing in Australia are underway and Lava Blue is staying in touch with these developers and providing input to some of those projects where we can.

At this point we are developing the expertise required to advise on battery separator materials and manufacturing, and we have been invited to assess options for production of a high purity electrolyte. We also mapping those parts of the Australian supply chain where we have expertise and potentially critical minerals to supply.

Battery Minerals Exploration Program

The relative fragility of global supply lines and the soaring demand for critical minerals that have both been demonstrated in the past two years has highlighted the value of Lava Blue's NW Queensland Minerals Province properties and our expertise.

The NW Minerals Province of Queensland has mineral deposits of every single material used in most modern battery systems, with the sole exception at this point being economic lithium deposits. Lava Blue now has a dozen EPMs granted or under application covering a combined area of more than 2,200 sq km that include a range of historical mining centres for critical minerals and essential industrial metals.

Our EPMs are divided into five sets of properties.

1. The Lava Plains blocks covering about 420 sq km that incorporate the Mt Rosey Mine camp, historical sapphire mining areas and our > 13 million tonne JORC Measured and Inferred HPA resource.
2. The > 4.5 million tonne JORC Measured and Inferred Cloncurry high purity quartz resource on the very outskirts of Cloncurry itself and covering about 20 sq km.
3. Two EPMs in the southern Gulf region (some 150km north of Cloncurry) covering more than 210 sq km including our recently discovered manganese-cobalt 'sea floor' nodule beds. These EPMs also cover tens of kilometres of the major geological feature known as the Boomarra Horst which is regarded as the eastern edge of the prolific Mt Isa Inlier.
4. Perry Creek – a single large EPM of more than 280 sq km about a two hour drive south east of Lava Plains with a significant historical tungsten mining centre that has had no modern exploration.
5. The North East Granites – a set of four EPMs in a broad arc to the north of Lava Plains covering more than 1200 sq km that have historical tungsten, tin and copper mining plus a wide range of reported mineral occurrences, most of which have had no modern exploration. The North East Granites cover many areas which are highly prospective for lithium.



The majority of the North East Granites EPMs are not yet granted but we have been issued with the 'Notice to Grant' the EPM at Perry Creek. It is expected that we will at least be able to conduct reconnaissance visits and collect surface samples from historical mining centres at Perry Creek in the coming season.

A well known listed mining company has made approaches to Lava Blue about access to three of the EPMs under application in the North East Granites to conduct a preliminary assessment of the prospectivity of these areas for critical minerals. Lava Blue has agreed to grant that access. We will own all of the data generated by any field work and, should the other party identify areas that warrant further investigation, we will then be in a position to discuss a wider collaboration.

Manganese Cobalt leases being spun out into Boomarra Minerals Pty Ltd

The exciting high grade manganese-cobalt occurrence north of Cloncurry are being transferred to a new wholly owned subsidiary company called Boomarra Minerals Pty Ltd. Lava Blue has transferred these mineral properties from Cloncurry Industrial Minerals Pty Ltd to ensure that the assets can be dealt with individually on their merits at any point in the future.

Lava Blue is planning a trenching program for August 2022 to assess the near surface extent of the known outcropping area of the manganese nodules. Heritage clearances and access are being arranged in preparation for that campaign. While on site further field work will be undertaken to identify outcrop areas expected to be visible to the south as indicated by geophysical surveys analysed during the last year.

Silicon

Lava Blue has been participating on a CSIRO convened Silicon Round Table for the past several months that includes representatives from the one operating silicon metal producer in Australia, Simcoa Ltd, and a number of aspiring entrants to that supply chain. With the recent addition of Silicon to the Federal Government's list of critical minerals a number of Federal and State government agencies have commenced active investigations on the options for expanding the sovereign capability of Australia in the manufacture of silicon metal for all types of uses.

Lava Plains Gems

Our consulting gemmologist, Terry Coldham, reports that the market for Australian sapphire has been experiencing significant demand and elevated prices. While the type of Al_2O_3 that Lava Blue has been focussed on for the past few years is the one that is needed for high end electrochemical purposes, as we are still at risk on Lava Plains of finding a world class sapphire deposit, the recent improvements in the value of gem quality sapphire is of interest. Later this year we will actively follow up our 2020 discovery of a new area of potential sapphire deposits on the northern flank of Broken Vent. A summary of sapphire market dynamics provided by Terry Coldham is provided at the end of this report.

Following identification of that lens of uplifted basement granites alongside the exploded volcanic vent of Broken Vent on Lava Plains, further research by Dr Brian Senior suggests the possibility of the existence of a diatreme. This could explain the rare diamond occurrences that have been recorded from the Lava Plains district. The central breccia zone will be sampled with one or more trenches to see if upper mantle rocks are present which may have lamproite, eclogite or peridotite affinities.

Fund Raising and Market Capitalisation

Since December 1 2021 the Company has raised approximately \$1.65 million at \$0.20c per share, giving a current market capitalisation of approximately \$26 million. The Company has also put in place a line of credit



for \$1 million to ensure sufficient funds are available to complete and commission the Redlands Special Purpose Materials Research facility.

We have also been active in preparing and submitting grant applications for aspects of the research program and at the time of writing have four different bids lodged under various schemes.

Should you wish to have further information about the current raising feel free to contact us for further information.

Regards,

Michael McCann
Managing Director

Australian sapphire market report march 2022

The last two years, and especially the last six months have seen considerable demand for Australian sapphire. This is due to several factors.

1. Changes in fashion trends. There has been a recent and increasing demand in international markets for colours more typical of Australian sapphire production, colours such as green, teal blue, royal blue and those displaying two or more colours such as yellow and blue.
2. Changes in Australian sapphire production. Production from Australian sapphire mines has been decreasing steadily over the last decade. Just recently the last large-scale operation on NSW's New England sapphire fields closed for good.
3. Increasing awareness of good ethical practises. Increasingly the jewellery trade around the world has become increasingly aware of the need for ethical practises in their industry and requires reliable and accurate information on the source of material they use. Australian is one of the few gemstone producing countries that operate with affirmable ethical practises in mining and processing.

Demand has increased strongly for fine quality blue sapphire suitable for producing small, calibrated cut stones for multi stone jewellery pieces. Precisely the type of sapphire recovered from the Lava Plains deposit.

Until recently two strong sources supplied the international demand for fine blue sapphire rough in the smaller sizes, these were.

1. Artisanal sapphire miners, primarily on the African continent, where production curtailed due to political unrest.
2. The mechanical mines in NSW that have now closed.

In summary the demand for Australian sapphire, with its unique range of colours and colour combinations has increased dramatically in recent times while supplies have dwindled.

For further information on sapphire gemstone please contact Terry Coldham – terrycoldham1@gmail.com