

25 January 2021

## Quarterly Activities Report – December 2020

**ASX: CLQ**  
**OTCQX: CTEQF**

### Corporate Information:#

Ordinary shares: 810.4M  
Unlisted options: 8.4M  
Performance rights: 17.9M  
Cash at bank: A\$44.0M

**Co-Chairmen**  
Robert Friedland  
Jiang Zhaobai

**MD & CEO**  
Sam Riggall

**Non-Executive Directors**  
Judith Downes  
Eric Finlayson  
Ian Knight  
Stefanie Loader

**Company Secretary**  
Melanie Leydin

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### HIGHLIGHTS

- **All-time high EV and battery sales in November 2020 on the back of surging European demand**
- **Completion of first three drill holes at Phoenix Platinum Zone with assays pending**
- **Award of new water treatment contracts in Australia and Oman**
- **\$35 million equity capital raising successfully completed**

### About Clean TeQ Holdings Limited

Our vision is to empower the clean revolution by providing specialty materials and clean solutions to a range of industries using our proprietary Clean-iX® continuous ion exchange technology.

### Sunrise Battery Materials Complex

Sunrise is one of the largest and most cobalt-rich laterite deposits in the world. Once developed, the Project will become a globally significant producer of nickel sulphate and cobalt sulphate – key cathode materials for the electric vehicle battery market. Sunrise is also one of the largest and highest-grade scandium deposits in the world, positioning Clean TeQ to be a major supplier of low-cost scandium for production of next generation aluminium alloys for aerospace and automotive markets.

### Clean TeQ Water

Clean TeQ's water division delivers cost effective water treatment solutions to the power, mining, oil and gas and municipal industries using our proprietary technologies, including Continuous Ionic Filtration & Exchange (CIF®) and DeSALx®. These technologies are designed to cope with the most demanding waters to provide best in class performance in water recovery and operability.

# As at 31 December 2020

## SUNRISE BATTERY MATERIALS COMPLEX

During the quarter, Clean TeQ Holdings Limited and its controlled entities (**Clean TeQ** or the **Company**) continued to advance the development of the Sunrise Battery Materials Complex (**Sunrise** or **Project**) in New South Wales, Australia.

### EV Battery Market Update

Global plug-in EV sales (Battery Electric Vehicles (**BEVs**) and Plug-In-Hybrid Electric Vehicles (**PHEVs**)) hit an all-time high of 386,000 units in November 2020<sup>1</sup>. This represents a growth rate of approximately 100% compared to the same period in November 2019.

The Chinese EV market currently accounts for around half of all EV sales globally. Although China EV sales rates were impacted quite sharply by the pandemic during the early months of CY2020, Chinese EV production rates accelerated through the latter part of the year. European demand growth surged through the second half of CY 2020, elevating Europe as the largest regional EV market by the end of 2020.

Total lithium ion battery sales in November 2020 were estimated to be around 15.6GWh (79% growth YoY and 16% MoM) most of which is being driven by demand from BEVs.

### Sunrise Project Ongoing Works Programs

A range of work-streams are underway in order to progress a number of value-adding deliverables aimed at minimising Project restart time once funding is secured:

- Work is being progressed on the long-lead electrical transmission line (**ETL**) work scope. The ETL application to connect to the NSW electrical grid is currently in progress and will continue through CY21.
- Progressing ongoing commercial discussions with landowners, local councils, the NSW state government and other impacted parties required for land access agreements for key infrastructure including the water pipeline and the ETL.
- Surveying and planning for autoclave and oversize equipment transport routes to site.
- Preliminary investigations to be undertaken on our exploration licences for limestone resources, a key process reagent for which the Company currently has a supply contract in place with a third party.
- Testwork and process development work assessing opportunities for potential further downstream processing of sulphates into battery precursor materials.

<sup>1</sup> Statistics quoted are sourced from the Bernstein EV Tracker January 2021

- Ongoing environmental work including monitoring and compliance reporting.
- The Sunrise Community Consultative Committee will be continued as a stakeholder forum, along with a number of local community engagement/support programs.
- Progressing an application for a modification to the Sunrise project Development Consent that covers some enhancements and changes made during the Sunrise Project Execution Plan.
- A range of scandium alloy development programs will continue to be progressed, consistent with Clean TeQ's long term strategy to work with, and assist, industry players to investigate and develop new applications for scandium-aluminium alloys.

### **Funding and Development**

COVID-19 has presented difficult conditions for financial markets and challenges for funding new projects. However, engagement with the automotive and battery sectors on Sunrise remains on-going. In the last quarter of 2020 Clean TeQ saw significant interest emerging from the automotive sector to secure long-term supply of nickel and cobalt for their battery supply chains.

While the timing for completion of a financing transaction is not possible to forecast, Clean TeQ will continue to engage with potential partners across the supply chain.

### **Sunrise Renewable Energy**

In early January 2021 the Company announced the completion of a study confirming the availability and cost of renewable energy to supply 100% of the external power requirements for the Sunrise Project. Transformative in its impact, the proposal eliminates approximately one-third of the project's total carbon emissions and positions Sunrise as one of the world's largest battery metals producers, designed to run on 100% renewable power.

Over the first 25 years of operation, the change is estimated to reduce carbon dioxide emissions by 4.6 million tonnes, equivalent to taking over 1 million internal combustion engine cars off the road for a year. It will also lower Sunrise's estimated carbon intensity to 12kg CO<sub>2</sub>e/kg Ni (in nickel sulphate), giving it one of the lowest carbon footprints for battery-grade nickel production in the world.

The majority of Sunrise's energy demand will be generated on-site from a co-generation circuit attached to the acid plant. Supplemental energy is required for peak demand and at times when the acid plant may not be operating at full capacity, such as during maintenance shut-downs.

Throughout 2020 a joint study was undertaken with AGL Energy Limited (ASX:AGL), the owner of Australia's largest portfolio of electricity generation assets, to identify several alternatives for the delivery of renewable energy to Sunrise.

The study considered Sunrise's electricity demand profile over the first ten years of operations and assessed a range of options, including a dedicated BOOT proposal to build a behind the meter on-site solar array (with and without battery storage), as well as renewable electricity sourced directly from the generator/retailer via the NSW grid.



*AGL's Nyngan Solar Farm, Central New South Wales*

While the Company has yet to commit to a final development option, several viable proposals have been presented and these will now be incorporated into our development plans.

The capital and operating cost estimates contained in the Sunrise Project Execution Plan<sup>2</sup> (**PEP**) assumed Sunrise would purchase supplemental energy directly from the NSW grid. This entailed construction of a longer electrical transmission line from site to the regional centre of Parkes. This cost is included in the PEP capital cost estimate and it remains an important enabler for providing options for renewable power supply. Accordingly, there is no capital cost impact from adopting 100% renewable electricity supply, when compared with the base case PEP cost assumptions.

For operating costs, the proposed renewable energy tariffs have no material impact on post-tax cashflow or the project's net present value, highlighting just how competitive renewable power options have become compared to conventional grid supply. The

<sup>2</sup> For full details of the Project Execution Plan see the ASX announcement of 28 September 2020



study confirms the credentials of the Sunrise Project as one of the lowest-cost and most sustainable sources of critical battery cathode materials for the EV industry.

The cost competitiveness of these proposals is a testament to the rapid advances that have been made towards increasing renewable energy capacity within the eastern Australian electricity market, and the rapid maturation of technologies in the energy industry. Discussions continue with AGL on the scope and timing of a technical and commercial feasibility proposal to support commercial arrangements for power supply.

### **Sunrise Downstream Studies**

During the quarter the Clean TeQ Technology and Innovation Team progressed a number of studies to assess potential opportunities for further downstream processing at the Sunrise Project site including production of EV battery cathode precursor material (**PCAM**) and cathode active material (**CAM**)<sup>3</sup>. The objective of these scoping level studies is to demonstrate the suitability, and assess the approximate cost, of processing of the Sunrise nickel and cobalt outputs into downstream products in the EV battery supply chain.

During the quarter the Clean TeQ Technology and Innovation Team produced a batch of PCAM from samples of Sunrise nickel/cobalt sulphate solution. The outcomes of the study estimated that significant PCAM production cost savings were potentially achievable with a modest (~\$200 million) investment in a PCAM manufacturing plant at Sunrise.

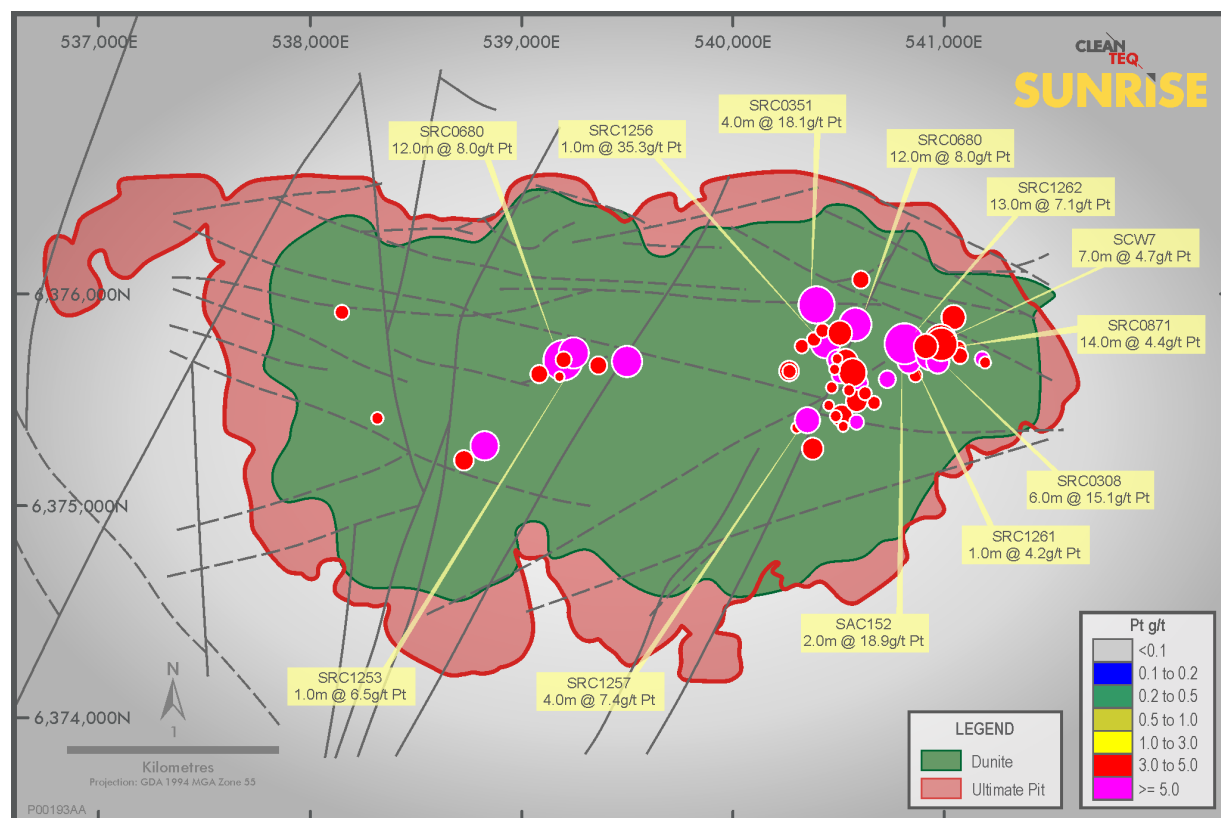
The team has also been working with the Queensland University of Technology (**QUT**) on PCAM precipitation and lithium-ion battery fabrication and testing. During the quarter QUT produced a prototype lithium-ion battery NMC 622 coin cell battery from Clean TeQ's batch of PCAM. Preliminary results indicated that the measured capacity on the NMC 622 coin cell was comparable to the performance of commercial NMC 622 cells. Characterisation of the PCAM and CAM materials showed that the expected properties were also achieved (Nickel(II) hydroxide crystal structure, particle and aggregate size and shape).

By demonstrating the potential for further downstream processing on site at Sunrise, the Company's aim is to show potential funding partners that options exist for enhanced supply chain integration at the mine site in order to minimise processing and transportation costs, as well as providing for more efficient and environmentally friendly management of the supply chain's mining/metal processing waste streams.

<sup>3</sup> Note that these studies are currently at a high-level and conceptual in nature. The Company is also not permitted to manufacture these downstream products and would require extensive HSEC studies and permitting applications to be approved before PCAM or CAM production facilities could be established on site at Sunrise.

## Phoenix Platinum Zone

The Sunrise laterite hosts a significant resource<sup>4</sup> of 103.1 Mt @ 0.33 g/t Pt for 1,076,170 ounces of platinum, using a 0.15 g/t Pt cut-off grade, making it one of the largest platinum resources in Australia. Of this total resource, approximately 90% (metal content) is in the measured and indicated categories. While the average grade over the global resource is relatively low, areas of significantly higher-grade platinum mineralisation exist within the resource envelope – the Phoenix Platinum Zone.



**Plan view of historic drill hole locations with significant Pt intersections**

The Sunrise Project is located approximately 5km northwest of Fifield, at the eastern end of an intrusion known as the Tout Intrusive Complex. The core of the intrusive body is a dunitic, olivine-rich igneous rock of ultramafic composition, exhibiting a coarse-grained texture and surrounded by pyroxenite and gabbro. The surface expression of this magmatic system is a nickel-cobalt-scandium bearing laterite that forms the existing ore reserve<sup>5</sup> for the Sunrise Project. The laterite is the product of weathering and decomposition of one or more dunite pipes, resulting in the gradual concentration of metals near surface.

Current interpretations of platinum distributions across the laterite suggest that the higher-grade accumulations have formed above one or more primary platinum sources

<sup>4</sup> For full details see ASX announcement dated 25 June 2018.

<sup>5</sup> For full details see the ASX announcement dated 28 September 2020

within the underlying dunite. This has resulted in two zones of higher-grade accumulation – one in the east and one in the west – separated by a paleochannel, assumed to be comprised of mostly barren sediment.

Despite extensive drilling over previous decades, only a handful of holes have been drilled beneath the Sunrise laterite. Of these, significant historic downhole intersections include<sup>6</sup>:

- 4m (from 119m) @ 7.4g/t Pt, 0.13% Ni and 0.01% Co, for 29.4 g.m Pt (SRC1257)
- 1m (from 127m) @ 6.5g/t Pt, 0.15% Ni and 0.01% Co, for 6.5 g.m Pt (SRC1253)
- 1m (from 23m) @ 4.2g/t Pt, 0.15% Ni and 0.01% Co, for 4.2 g.m Pt (SRC1261)

All holes were drilled using reverse circulation rigs and no assays were undertaken for other PGEs in these drill samples.

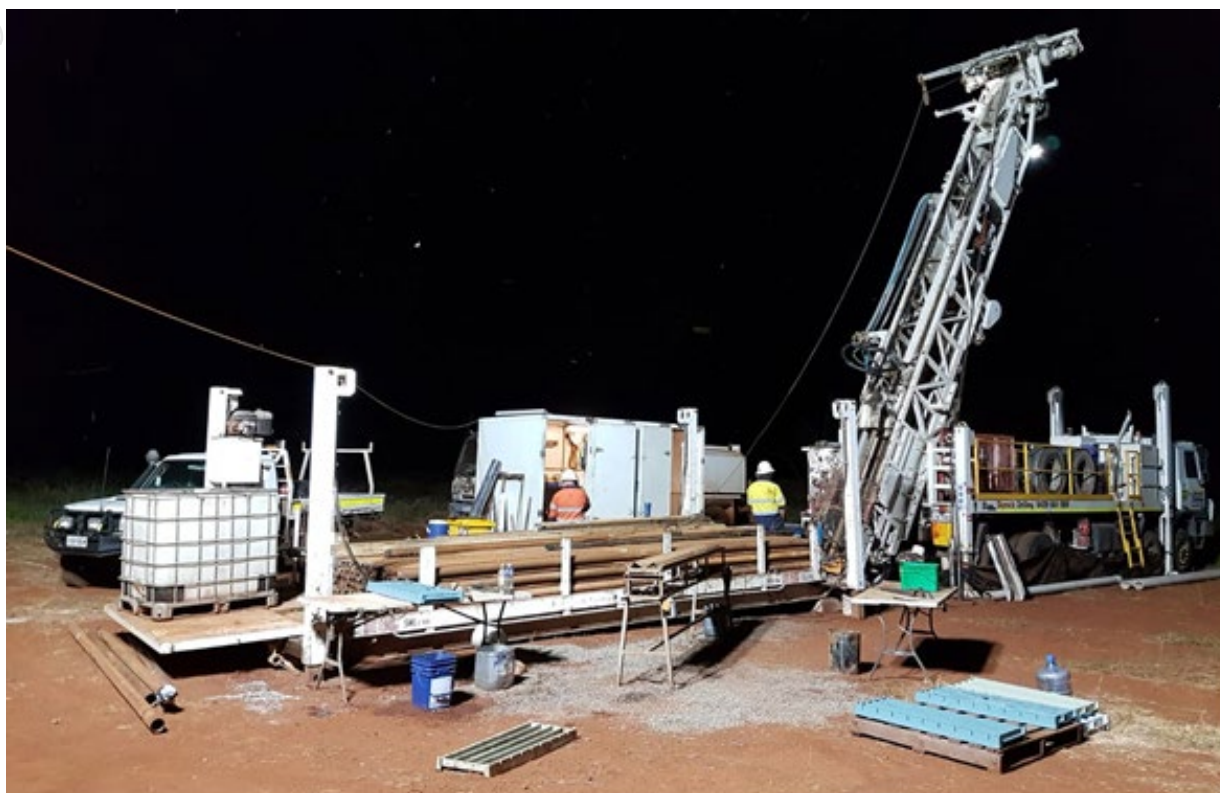
Given the high platinum grades near surface and historic intercepts beneath the laterite, a program of work has commenced to test the structural geology of the Tout Intrusive Complex, targeting the establishment of a platinum resource that will either integrate with the development of the Sunrise nickel-cobalt-scandium mine, or be developed as a stand-alone operation.

During the quarter the Company progressed this program of work including:

- Completing the first three of the planned six-hole diamond core drill program. The program is aiming to intersect the dunite structures at depth (targeting 400-600m below surface) which are proposed to be the source of the platinum in the Sunrise laterite;
- The initial hole (SDD022) was targeting the area approximately 120m below surface which was identified in historic drilling undertaken by Ivanplats (SRC1257 returned 4m (from 119m) @ 7.4g/t Pt, 0.13% Ni and 0.01% Co, for 29.4 g.m Pt).
- SDD022 successfully intersected that target area, with visible indications of chromite veining, and hand-held X-ray fluorescence spectroscopy ('XRF') analysis also indicating elevated levels of Cr, Fe and Mg in veins.
- Chromite veining is typically found coincident with platinum group elements ('PGEs') in Alaskan style dunite pipe systems. Chromite veins were also reported by Ivanplats in the target area of SRC1257;
- Assays results from first three holes are expected by mid-February 2021.

<sup>6</sup> For full details see ASX announcement dated 3 September 2020. Drilling undertaken by previous owner Ivanplats in 2005/06 with assays undertaken by ALS in Orange, NSW. Data is as per the drilling data records provided by Ivanplats to the Company. This historical data is relevant and material in the context of the deeper drilling program detailed herein. Although the Company is confident the drill data is accurate, the information is based on historic drilling and records and therefore does not conform to JORC 2012 standards.

- Re-mobilisation of the drill rig will occur in March once the remaining targets have been re-assessed against pending assay results.



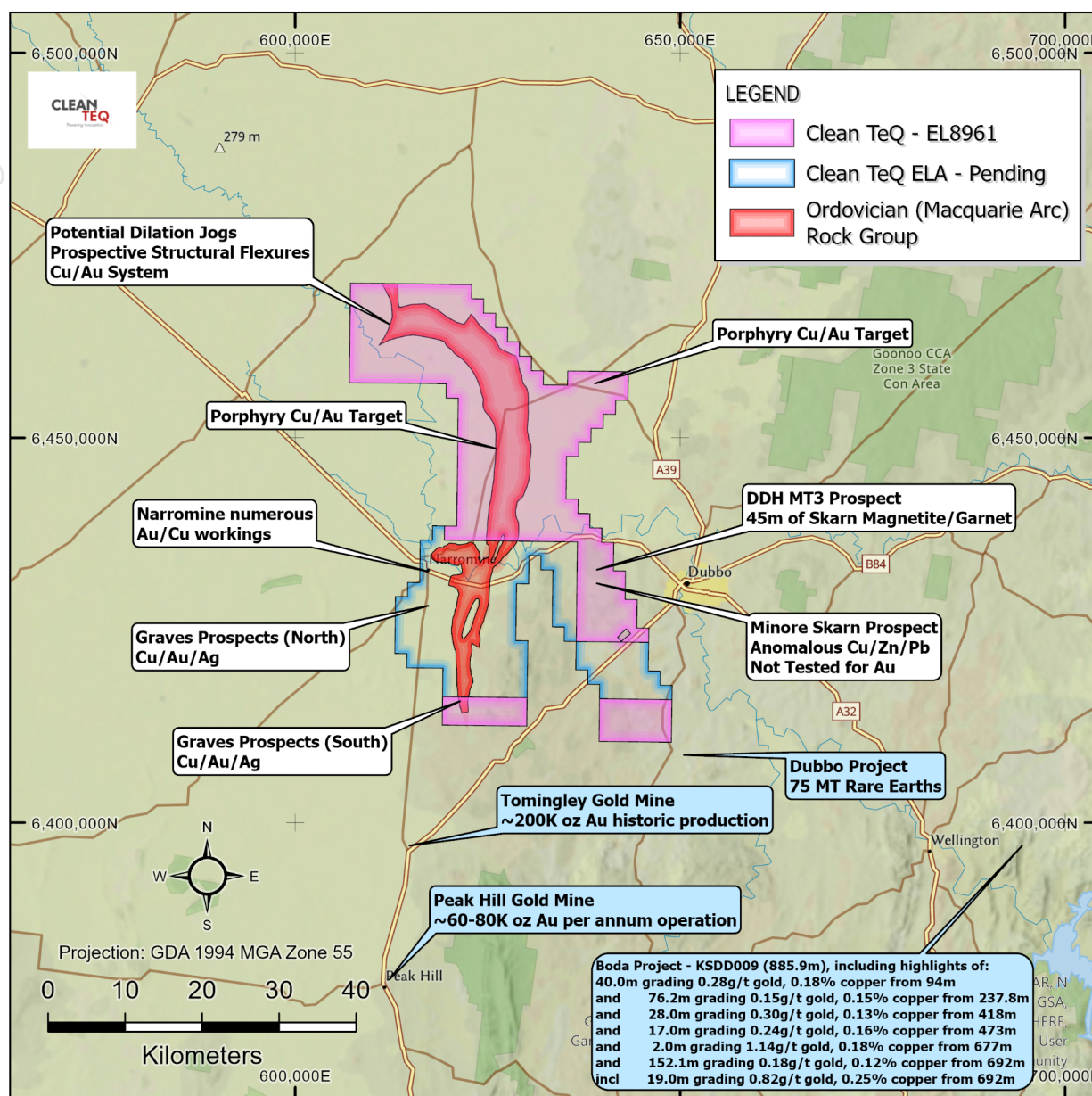
*Night shift drilling – the Star of Venus (Ishtar) is visible low on the horizon*

## MINORE PROJECT

In April 2020 the Company was granted Exploration Licence 8961 (Mining Act 1992) for Group One (1) metals (including base and precious metals) located near Dubbo and Narromine. Clean TeQ has also applied for an adjacent area subject to the existing Dubbo Mineral Allocation Area (**MAA**). The MAA system is a mineral exploration stimulus initiative by the NSW Government pursuant to which new exploration licence applications may not be lodged without Ministerial consent. The area is prospective primarily for copper/gold porphyry targets. During the quarter the Company received Ministerial consent for grant of the MAA area. That area is now the subject of a pending exploration licence application.

The tenement overlies what is interpreted to be Macquarie Arc Ordovician sequences and the St Andrews Beds in the Minore township. At Minore the sediments have been intruded and metamorphosed by the Devonian Yeoval Granite. Magnetite, copper, zinc, tungsten and trace lead mineralisation are known to occur at the prospect from work undertaken by CRA Exploration in the 1970's.





**EL8961 and pending ELA**

The area has been subject to limited mineral exploration, but there have been a number of shallow historic exploration drilling intercepts, largely drilled by CRA Exploration. The drilling targeted an outcropping north-west striking skarn, known as Minore, which exhibited boxwork structures and manganese in outcrop and magnetite, garnets, sulphides and epidote in fresher rock. The units dip moderately to the north-east where further structures of interest are noted from unprocessed Total Magnetic Intensity geophysical images. Reverse circulation drilling has intercepted anomalous copper, lead, zinc and tungsten intercepts, up to 3700ppm copper and 7m averaging 2000ppm copper from RC drilling. This drilling was followed up by 3 deeper (180m) diamond drill holes down dip of the anomalies. Two of these holes also intercepted similar anomalies. The host rocks have been logged as metamorphosed green quartzite, fine-grained grey laminated quartzite, quartzite and garnet (calc-silicate) hornfels, microgranite and fine-

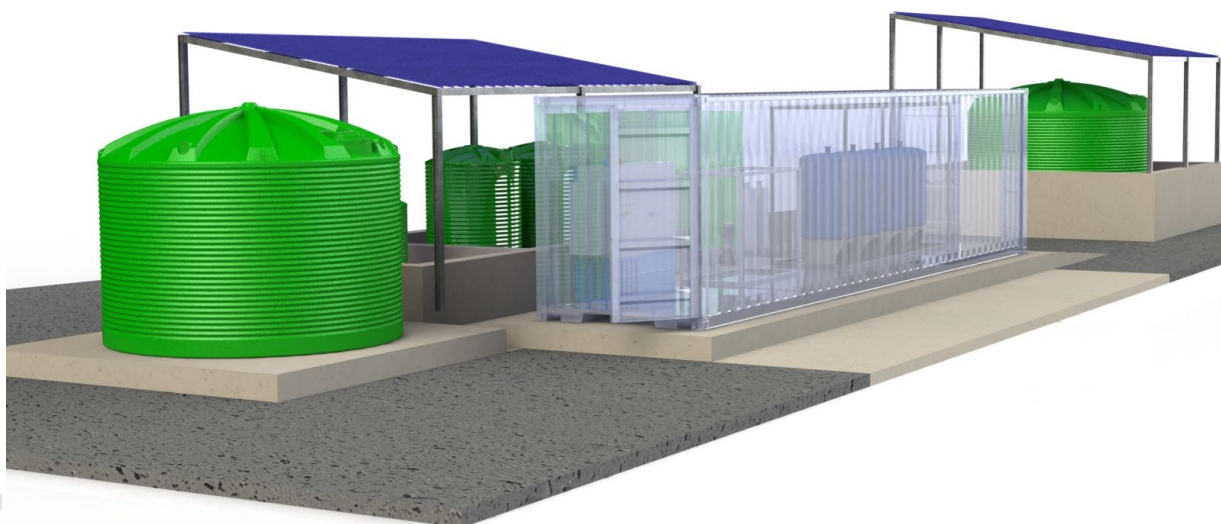
grained acid volcanics. Magnetite is closely associated with the garnet hornfels. The skarn is thought to have a strike extent of at least 1km.

Historic CRA diamond drill core is held at the Londonderry core library in NSW where Hylogger multispectral scans have recently been run on the core. Clean TeQ's geologists will further interpret this data while Southern Geoscience re-processes and interprets existing geophysical data over the area to better understand mineralisation target opportunities.

## CLEAN TEQ WATER

### Water Projects

During the quarter the Company announced the award of two additional water purification contracts in Queensland and Oman.



#### *Clean TeQ designs for Koumala water treatment plant in Queensland*

Clean TeQ has won a competitive tender and been awarded a contract which is valued at over \$2 million by Mackay Regional Council for the upgrade of a bore water treatment plant at Koumala, near Mackay in Queensland.

Clean TeQ will design, supply, and install an ion exchange treatment plant plus a package gas chlorination system to remove hardness and lower the salinity of an existing bore water supply to reduce the scaling of pipes and improve taste for use in the potable water supply of Koumala, Queensland. Clean TeQ will manage the full design, procurement, construction and commissioning of the plant including

subcontracting of civil works. The program of works is scheduled to commence in the first quarter of CY2021 and run through to the end of the year.

In late 2019 Clean TeQ announced the successful customer acceptance of commissioning and handover of a ground-breaking Continuous Ionic Filtration (CIF®) plant in Oman. Clean TeQ was engaged by Multotec, the Company's sales and delivery partner in Africa, under a design, procure and construct contract to deliver a waste water treatment system at an antimony processing facility in Oman. The Clean TeQ designed and supplied water treatment plant comprises the Company's DESALX® (two-stage CIF®) technology, chemical precipitation and reverse osmosis to recycle process water for re-use on site. The water treatment plant is designed to remove a range of deleterious elements from up to 200 tons of waste water per day.



***Clean TeQ's proprietary DESALX® (two-stage CIF®) plant in Oman***

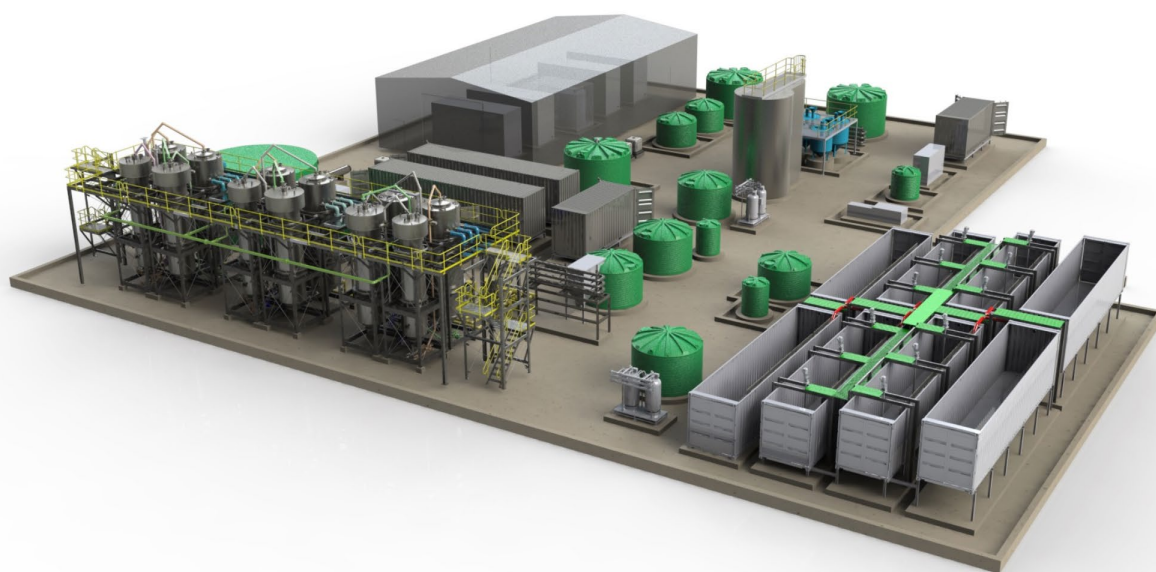
By treating the waste, the customer is able to recycle a significant proportion of the water for re-use in their processing plant, rather than disposing of it. This provides a valuable cost saving for the customer in a geographic location where water is relatively scarce. Recycling the water also results in environmental benefits by significantly reducing the volume of waste which would otherwise need to be disposed.

The plant consists of a number of precipitation steps to remove antimony, arsenic and hardness, followed by Clean TeQ's proprietary DESALX® (two-stage CIF®) technology system to extract calcium and magnesium sulphate plus any remaining heavy metals, followed by reverse osmosis to desalinate the water and prepare it for re-use.



Clean TeQ has been awarded a contract to undertake the detailed design for an upgrade of this water treatment plant. Changes in the upstream antimony processing facility have resulted in a higher salt load and increased arsenic, antimony and selenium concentrations in the waste water. The upgrade will focus on neutralising the waste liquors and precipitating contaminants for easier recovery, as well as upgrading the existing ion exchange circuit using Clean TeQ's CIF® technology and adding additional pre-treatment for the reverse osmosis plant in order to maximise recovery and generate reduced brine for disposal. Being appointed to undertake the detailed design means Clean TeQ is well placed to ultimately be appointed to undertake the upgrade works if they are to proceed.

As the Company announced in 2020, strong progress is being made towards Clean TeQ securing an engineering, procurement and construction (**EPC**) contract with Townsville City Council for a large-scale water recycling plant utilizing our HiROx® process and BIOCLENS encapsulated bacteria. HiROx® is an ultra-high recovery water treatment process which combines Clean TeQ's CIF technology with reverse osmosis.



***Townsville Water Purification Plant Render: The Clean TeQ HiROx® plant combines Clean TeQ's continuous ion exchange technology with reverse osmosis and encapsulated bacteria***

Clean TeQ Water has been advised that it is the preferred contractor to deliver a recycled water re-use plant at the Cleveland Bay Purification Plant in Townsville, however, award of a final EPC contract is subject to a range of conditions including agreement on commercial terms, construction schedule and pricing. While the EPC contract discussions are ongoing, Townsville Council engaged Clean TeQ on an initial scope of work valued at A\$920,000 for detailed design and procurement of long-lead items for the plant. This work was completed in 2020. Although contract negotiations



remain ongoing, Townsville Council has delayed the award of the contract and commencement of works due to COVID19 related council budgetary issues. Based on the latest feedback from Townsville, the Company anticipates that the majority of the EPC works will now not commence until July 2021 at the earliest.

## BIOCLENS

In 2018, Clean TeQ acquired an encapsulated bacteria technology comprising technology licences and a production plant for the manufacture of bacteria encapsulated in a polyvinyl alcohol (PVA) lens (**BIOCLENS**). BIOCLENS offers significant opportunities in water treatment applications given the bacteria's ability to break down and remove over ninety percent of harmful nitrates and ammonia from wastewater. BIOCLENS, with encapsulated bacteria or enzymes, also has potential applications in the food and pharmaceuticals industries.



*Clean TeQ's BIOCLENS manufacturing and pilot plant in Tianjin*

The bacteria are encapsulated in a plastic polymer in the shape of a lens. The lens shape and size are important as they ensure maximum biological activity while protecting the biology from potentially harmful environmental conditions.

In conventional biological purification processes, the salinity of the water suppresses the activity of the bacteria and limits its ability to remove ammonia and nitrate to the desirable levels for recycling. The BIOCLENS technology is highly amenable for application in the aquaculture sector because the polymer lens protects the bacteria to maintain high biological activity in this saline environment.

The Company has established the BIOCLENS production facility in China for its growing pipeline of potential water purification projects. Having completed the transportation and

installation of the lens manufacturing equipment to a facility in Tianjin, trial production runs started in Q3 2019. Stable output at consistent quality from continuous operation was achieved in Q2 2020.

During the quarter the Company announced the successful completion of a nitrate removal trial in China for Tianjin Xinda Environmental Protection Company (**Xinda**). Xinda is a waste water treatment company with fifteen plants located throughout Tianjin municipality, an area containing the fourth largest urban population in China.

The aim of the trial was to demonstrate the cost effectiveness of Clean TeQ's BIONEX system to reduce nitrate levels in wastewater in order to meet China's increasingly strict waste water disposal regulations. Successful completion of this trial is important because it provides Clean TeQ with independently verified confirmation of the efficacy of the BIONEX technology in the very large Chinese nitrate removal market.

Nitrate water pollution is a major problem throughout the world. Elevated nitrate levels in waste water can lead to eutrophication of natural water bodies, causing algal blooms which severely harm water quality. Nitrate in drinking water has also been linked to Infant Methemoglobinemia (blue baby syndrome) and increasingly to various forms of cancer. For that reason, there are strict nitrate limits for wastewater treatment plants throughout the world.

Traditional nitrate removal plants use bacteria to break down nitrates in waste waters. These biological systems are typically suitable for removing high concentrations of nitrate but are often not able to meet the strictest (<5 ppm) nitrate effluent concentrations which are required for disposal of water into sensitive environments including certain rivers, lakes and drinking water catchments. This challenge is even greater during colder weather months when bacteria are less active.

Clean TeQ's BIONEX system utilises ion exchange resins to extract nitrate from waste water streams into a highly concentrated, nitrogen-rich brine product. This brine is then treated with our BIOCLENS encapsulated bacteria technology which converts the nitrate into harmless nitrogen gas. The flow rate of the concentrated brine product stream is typically only around two percent of the main flow, delivering substantial water treatment cost-savings.

Clean TeQ's BIOCLENS technology – bacteria encapsulated in polyvinyl alcohol (**PVA**) lenses – offers significant advantages in water treatment applications given bacteria's ability to break down and remove very high proportions of harmful nitrates and ammonia from wastewater. The bacteria are encapsulated in a PVA polymer in the shape of a lens. Lens shape and size are critically important as they ensure maximum biological activity while protecting the bacteria from potentially harmful environmental conditions. BIOCLENS also has promising applications in the food and pharmaceuticals industries.

During the demonstration plant trial in Tianjin, our BIONEX system was used to treat 95m<sup>3</sup>/day of effluent from a wastewater treatment plant by consistently reducing the

influent nitrate concentration from 30 ppm down to 0 ppm. Using BIOCLENS to treat the brine confirmed that no nitrate would need to be discharged to the environment.

With this trial Clean TeQ has demonstrated that BIONEX can eliminate nitrate at very low cost (below A\$0.20/m<sup>3</sup> for this application, and even less for removal of nitrate in lower concentrations) while significantly reducing waste (brine) production. The BIOCLENS lenses used in the process are manufactured by Clean TeQ in our 100% owned factory in Tianjin.

Clean TeQ is actively promoting the BIONEX and BIOCLENS technology with two further demonstration trials which are scheduled to commence in China over the coming weeks (in aquaculture and another municipal project). The Company is also negotiating with several parties who are interested in projects for large scale implementation. Clean TeQ is also working with partners in the US to introduce our BIONEX technology for removal of nitrate from ground water sources of drinking water.

The BIOCLENS technology is also an important water purification process in the proposed Townsville Project where it is employed to reduce the nitrogen load of the wastewater effluent discharged from the facility.

Combined with Clean TeQ's proprietary ion exchange capability, the addition of BIOCLENS technology allows Clean TeQ Water to provide a broad suite of solutions to the global water treatment market that are focused on cost-effectiveness, performance and sustainability.

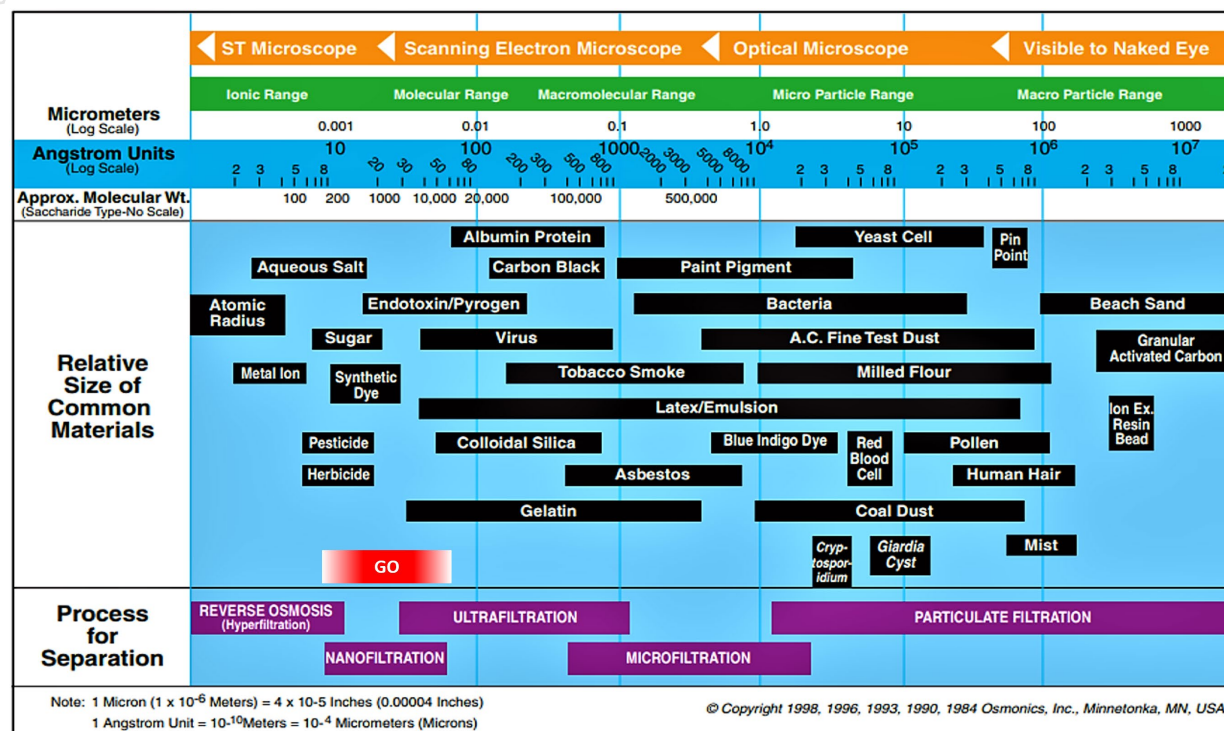
## TECHNOLOGY DEVELOPMENT

Clean TeQ's technology development team continues to advance its work in the development of graphene oxide nanofiltration membranes and adsorbents, as well as ongoing development of the ClF<sup>®</sup> technology for water treatment applications.

### NematiQ Joint Venture

In late 2018, Clean TeQ and Ionic Industries established a joint venture company NematiQ Pty Ltd (**NematiQ**) to pursue in partnership the development of graphene oxide (**GO**) membranes for water treatment applications. Clean TeQ and Ionic have developed a process to manufacture high-purity GO that can be applied to a membrane support to create a graphene nanofiltration membrane (**GO-Membrane**). Significantly, the GO-Membrane manufacturing process has been demonstrated on commercial scale industrial equipment.

In water purification applications, graphene oxide membranes have the potential to offer distinct operational advantages over the current polymer nanofiltration membranes, providing a significant commercial opportunity should the technology prove successful.



***Hierarchy of water filtration applications: Graphene oxide (GO) membranes have the potential to offer distinct operational advantages over the current polymer nanofiltration membranes***

The benefits of graphene oxide nanofiltration membranes when compared to conventional nanofiltration membranes include higher flux (flow rates) and lower propensity to fouling. These benefits have the potential to deliver lower operating costs, longer membrane life and lower maintenance costs.

NematiQ has established a factory and office premises in Notting Hill, adjacent to the existing Clean TeQ head office and laboratory. From this facility, NematiQ is focused on optimising its proprietary process for refining graphite oxide raw material into graphene oxide, which is used to form the filtration layer of the GO-Membrane. A pilot plant for the manufacture of high purity graphene oxide has been designed and installed at NematiQ's premises, with graphene oxide produced by the facility to be used for larger scale manufacture of graphene oxide membranes.

The development of the membrane has now progressed to a stage where we have produced at pilot scale a graphene oxide-based membrane with a molecular weight cut-off of 1,000 Daltons (commercial target molecular weight for nanofiltration) and with a flux rate that is superior to the currently available polymer based nanofiltration membranes.



GO-Membrane printing trials were undertaken during 2020 using a specialised commercial printing press in the USA. The trials confirmed that a GO-Membrane, meeting flux and molecular weight cut-off targets, can be produced on commercial equipment at economic printing speeds. The work programs currently underway are aimed at:

- eliminating intermittent membrane defects by improving the GO-Membrane robustness;
- enhancing the durability and performance of the membrane in chemical conditions typically encountered in a number of different proposed applications, including enhancing chlorine resistance; and,
- reducing the cost of the base membrane on which the GO-Membrane is supported.

The applications for GO-Membranes are numerous and include many large-scale market segments such as removal of organics from drinking water and from wastewater effluents along with more niche markets in value-added industries such as food and pharmaceutical.

## CORPORATE

As at 31 December 2020, the Company's cash balance was A\$44.0 million. A summary of the expenditure incurred during the quarter is detailed in the attached Appendix 4C.

### Equity Capital Raising

The Company announced in early January 2021 that it had successfully completed a Share Purchase Plan (**SPP**) with subscriptions received from eligible shareholders totalling 51.7 million shares at an issue price of \$0.25 per share to raise proceeds of A\$12.9 million. In early January 2021 the Company also settled the share placements which were approved by shareholders at the general meeting on 8 January 2021. The two placements of 12 million shares each at an issue price of \$0.25 per share to raise total proceeds of \$3 million were made to Co-Chairman and Non-Executive Director Mr Robert Friedland and Pengxin International Group Limited, an entity associated with Mr Jiang Zhaobai, Co-Chairman and Non-Executive Director.

The SPP, the placements to the Co-Chairmen and the placement to institutional and sophisticated investors announced 25 November 2020 represent a total equity raising of approximately A\$35 million, representing a pro-forma 31 December 2020 cash position of A\$62.9 million. The proceeds raised are to be used as follows:

- Funding for the ongoing development and growth of our water purification business, including provision of initial working capital for its proposed spin out into a new stand-alone entity;
- Progressing our work in the research and development of graphene oxide membranes as part of the NematiQ joint venture;
- Permitting, land access, environmental monitoring and long-lead activities at our Sunrise Battery Materials Complex, while we continue to pursue a financing package for the project;
- Mineral exploration activities at our suite of tenements including the Phoenix Platinum Zone beneath the Sunrise laterite and the Minore Project near Dubbo, NSW; and,
- General corporate and working capital.

## Demerger

As per the ASX announcement of 14 September 2020, the Company is considering a separation of its water division from the remainder of its business, comprising the Sunrise Project and the Company's other mineral exploration activities in New South Wales.

Establishing stand-alone, separately listed, entities will allow shareholders to more readily manage their own desired exposure to each of the businesses, as well as simplifying the investment proposition to new investors.

In the case of Sunrise, it also provides an opportunity to pursue investment and funding structures within a corporate vehicle comprising an asset suite focused exclusively on battery materials.

The Company has commenced a formal review of a potential demerger, for consideration by the Board, which will provide a recommendation to shareholders in due course. The review will consider taxation, structuring and other regulatory implications.

Preliminary advice indicates that any demerger is likely to be optimised by undertaking a spin out of the Water Business into a new entity (**Newco**) by way of a capital return comprising a pro-rata in-specie distribution of shares in Newco to Clean TeQ shareholders. The Company is progressing the review which is expected to conclude in Q1 of CY 2021.

## Share Consolidation

During the quarter the Company announced that it had withdrawn a proposed shareholder resolution to undertake a 1 for 10 share consolidation due to the fact that the Australian Securities Exchange's (**ASX**) and Toronto Securities Exchange's (**TSX**)

back office settlement systems and processes are not able to be aligned in order to implement the share consolidation while also allowing for shares to continue to trade on TSX post-consolidation.

The Board of Directors wishes to thank shareholders for their support of the resolution, with 96% of shares voted at the close of proxy voting in favour of the share consolidation. Given the very strong support of shareholders for the Share Consolidation, the Directors intend to put the resolution to shareholders again once it is practical to do so.

### **TSX Listing**

The Company announced during the quarter that it had applied for a voluntary de-listing of its ordinary shares from trading on the Toronto Stock Exchange (**TSX**). The Company's shares were de-listed and ceased trading on the TSX after close of trading on 5 November 2020.

The decision to de-list was due to several factors, including the limited trading volume of Clean TeQ's shares on the TSX over a sustained period of time. Over a 12-month period to early-October 2020, 96% of shares traded occurred on the ASX. Furthermore, the average daily volume of shares traded on ASX over the same period was 1,245,000 compared to 48,800 on the TSX. In addition, only 1.7% of Clean TeQ's shares are held on the Canadian share register. As a result, the Board of Directors considers the regulatory and other costs associated with maintaining the TSX listing cannot continue to be justified.

The Canadian sub-register was closed and replacement ASX listed shares issued to all TSX shareholders (or their custodian/brokers on their behalf) on 9 December 2020.

### **NematiQ Joint Venture**

Clean TeQ and Ionic Industries established NematiQ as a joint venture company to pursue in partnership the development of graphene oxide membranes for water treatment applications. Ionic and the Company fund NematiQ's activities through periodic cash calls provided as shareholder loans. Under the terms of the NematiQ joint venture agreement, if a party fails to fund a cash call, then the other party may fund the resulting shortfall as either a senior loan or an equity placement at a pre-agreed price.

During the quarter Clean TeQ funded a \$64,664 shortfall by way of equity placement in NematiQ at \$1 per share. As a result of the equity placement, the ownership of NematiQ is now approximately 83.2% Clean TeQ and 16.8% Ionic Industries.

### **For more information about Clean TeQ contact:**

Ben Stockdale, CFO and Investor Relations

+61 3 9797 6700

This announcement is authorised for release to the market by the Board of Directors of Clean TeQ Holdings Limited.

## FORWARD-LOOKING STATEMENTS

Certain statements in this Quarterly Activities Report constitute “forward-looking statements” or “forward looking information” within the meaning of applicable securities laws. Such statements involve known and unknown risks, uncertainties and other factors, which may cause actual results, performance or achievements of the Company, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements or information. Such statements can be identified by the use of words such as “may”, “would”, “could”, “will”, “intend”, “expect”, “believe”, “plan”, “anticipate”, “estimate”, “scheduled”, “forecast”, “predict” and other similar terminology, or state that certain actions, events or results “may”, “could”, “would”, “might” or “will” be taken, occur or be achieved. These statements reflect the Company’s current expectations regarding future events, performance and results, and speak only as of the date of this Quarterly Activities Report.

Statements in this Quarterly Activities Report that constitute forward-looking statements or information include, but are not limited to, statements regarding: securing financing for the Sunrise Project; the outlook for electric vehicle markets and demand for nickel and cobalt; the financial results of the PEP including statements regarding the Sunrise Project’s IRR and NPV; Sunrise Project’s carbon emissions; Sunrise capital and operating costs; the potential for new mineral discoveries at the Company’s mineral tenements; sales of BIOCLENS lenses; award of new Clean TeQ Water Projects; anticipated successful completion of the various Clean TeQ Water projects and outcomes related to research and development undertakings.

Readers are cautioned that actual results may vary from those presented.

All such forward-looking information and statements are based on certain assumptions and analyses made by Clean TeQ’s management in light of their experience and perception of historical trends, current conditions and expected future developments, as well as other factors management believe are appropriate in the circumstances. These statements, however, are subject to a variety of risks and uncertainties and other factors that could cause actual events or results to differ materially from those projected in the forward looking information or statements including, but not limited to, unexpected changes in laws, rules or regulations, or their enforcement by applicable authorities; the failure of parties to contracts to perform as agreed; changes in commodity prices; unexpected failure or inadequacy of infrastructure, or delays in the development of infrastructure, and the failure of exploration programs or other studies to deliver anticipated results or results that would justify and support continued studies, development or operations.

Other important factors that could cause actual results to differ from these forward-looking statements also include those described under the heading “Risk Factors” in the Company’s most recently filed Annual Information Form available under its profile on SEDAR at [www.sedar.com](http://www.sedar.com).

Readers are cautioned not to place undue reliance on forward-looking information or statements.

Although the forward-looking statements contained in this Quarterly Activities Report are based upon what management of the Company believes are reasonable assumptions, the Company cannot assure investors that actual results will be consistent with these forward-looking statements. These forward-looking statements are made as of the date of this Quarterly Activities Report and are expressly qualified in their entirety by this cautionary statement. Subject to applicable securities laws, the Company does not assume any obligation to update or revise the forward-looking statements contained herein to reflect events or circumstances occurring after the date of this Quarterly Activities Report.



## Appendix 4C

### Quarterly cash flow report for entities subject to Listing Rule 4.7B

**Name of entity**

CLEAN TEQ HOLDINGS LIMITED

**ABN**

34 127 457 916

**Quarter ended ("current quarter")**

31 December 2020

<b>Consolidated statement of cash flows</b>	<b>Current quarter \$A'000</b>	<b>Year to date (6 months) \$A'000</b>
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers	202	463
1.2 Payments for		
(a) research and development	(207)	(327)
(b) product manufacturing and operating costs	(42)	(274)
(c) advertising and marketing	(245)	(335)
(d) leased assets	(66)	(408)
(e) staff costs	(1,949)	(3,022)
(f) administration and corporate costs	(908)	(2,287)
(g) exploration and evaluation	(2,769)	(5,957)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	40	114
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	20	47
1.8 Other (provide details if material)	-	-
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(5,924)</b>	<b>(11,986)</b>
<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	(39)	(39)
(d) investments	-	-
(e) intellectual property	-	-

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 months) \$A'000
	(f) other non-current assets	-	-
2.2	Proceeds from disposal of:		
	(a) entities	-	-
	(b) businesses	-	-
	(c) property, plant and equipment	16	16
	(d) investments	-	-
	(e) intellectual property	-	-
	(f) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (provide details if material)	-	-
2.6	<b>Net cash from / (used in) investing activities</b>	<b>(23)</b>	<b>(23)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	15,956	15,956
3.2	Proceeds from issue of convertible debt securities	-	-
3.3	Proceeds from exercise of options	-	-
3.4	Transaction costs related to issues of equity securities or convertible debt securities	-	-
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
3.10	<b>Net cash from / (used in) financing activities</b>	<b>15,956</b>	<b>15,956</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	34,021	40,083
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(5,924)	(11,986)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(23)	(23)

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 months) \$A'000
4.4	Net cash from / (used in) financing activities (item 3.10 above)	15,956	15,956
4.5	Effect of movement in exchange rates on cash held	-	-
4.6	<b>Cash and cash equivalents at end of period</b>	<b>44,030</b>	<b>44,030</b>

5.	Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	Current quarter \$A'000	Previous quarter \$A'000
5.1	Bank balances	44,030	34,021
5.2	Call deposits	-	-
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>44,030</b>	<b>34,021</b>

**6. Payments to related parties of the entity and their associates**

6.1 Aggregate amount of payments to related parties and their associates included in item 1

6.2 Aggregate amount of payments to related parties and their associates included in item 2

**Current quarter  
\$A'000**

-

-

Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments

**7. Financing facilities**

*Note: the term "facility" includes all forms of financing arrangements available to the entity.*

*Add notes as necessary for an understanding of the sources of finance available to the entity.*

7.1 Loan facilities

7.2 Credit standby arrangements

7.3 Other (please specify)

7.4 **Total financing facilities**

Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
-	-
-	-
-	-
-	-

7.5 **Unused financing facilities available at quarter end**

-

7.6 Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.

**8. Estimated cash available for future operating activities**

**\$A'000**

8.1 Net cash from / (used in) operating activities (Item 1.9)

(5,924)

8.2 Cash and cash equivalents at quarter end (Item 4.6)

44,030

8.3 Unused finance facilities available at quarter end (Item 7.5)

-

8.4 Total available funding (Item 8.2 + Item 8.3)

44,030

8.5 **Estimated quarters of funding available (Item 8.4 divided by Item 8.1)**

7.4

8.6 If Item 8.5 is less than 2 quarters, please provide answers to the following questions:

- Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?

Answer:

- Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?

Answer:

- Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer:



## Compliance statement

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

25 January 2021

Date: .....

The Board of Directors

Authorised by: .....  
(Name of body or officer authorising release – see note 4)

## Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standard applies to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [name of board committee – eg Audit and Risk Committee]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.