

# Clean TeQ Holdings Quarterly Activities Report – June 2018

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3D Model of Clean TeQ Sunrise Processing Plant

Model of Clean TeQ Sunrise Processing Plant

Clean TeQ Sunrise Project showing modified accommodation camp location

Clean TeQ's water treatment solution installed within the effluent treatment plant on site in Oman

Mobile demonstration unit nearing completion

## HIGHLIGHTS

• Completion of Clean TeQ Sunrise Definitive Feasibility Study, highlighting outstanding technical and economic outcomes

- Net Present Value<sup>1</sup> (NPV) of A\$1.856 billion<sup>2</sup>
- Post-tax Internal Rate of Return (IRR) of 19.1%

• Modification 6 to the Project's Development Consent approved

• Strong progress on delivery of Clean TeQ Water projects in Oman, Australia, Democratic Republic of Congo and China

• Cooperation Agreement between Clean TeQ Water and Meili Guotu Ecological and Environmental Research and Design Institute for collaboration and new project generation

• Completion and settlement of Tranche 2 of A\$155 million Institutional Placement and Share Purchase Plan

• Inclusion in the S&P/ASX 200 All Australian Index

## CLEAN TEQ SUNRISE PROJECT

[Clean TeQ Holdings Ltd.](#) (Clean TeQ or Company) continues to make significant progress towards development of the Clean TeQ Sunrise Project (Clean TeQ Sunrise or Project) in New South Wales. The primary focus during the quarter was the commencement of engineering and planning for early works on site and ongoing technical and economic assessment of the Project. The main achievement during the quarter

was completion of the Definitive Feasibility Study (DFS or Study) in late June 2018.

### Completion of Definitive Feasibility Study for Clean TeQ Sunrise

Completion of the Definitive Feasibility Study marked a significant milestone for the Clean TeQ Sunrise Project. Finalisation of the DFS will underpin the next phase of the Project's development which includes finalisation of product offtake agreements, completion of project financing and commencement of construction subject to a final investment decision.

The results from the DFS confirmed Clean TeQ Sunrise's status as a globally significant cobalt, nickel and scandium resource which, once developed, will become a major supplier of critical raw materials to the lithium-ion battery market. The DFS modelled the first 25 years of production, however the Project has sufficient resources for a mine life of more than 40 years.

Highlights of the Study included:

- Strong cash flow generation supporting a post-tax Net Present Value<sup>3</sup> (NPV) of US\$1.392 billion (A\$1.856 billion<sup>4</sup>) and post-tax Internal Rate of Return (IRR) of 19.1%.

- Extremely low average C1<sup>5</sup> operating costs of negative US\$1.46/lb nickel after credits<sup>6</sup> and US\$4.68/lb nickel before credits<sup>4</sup>.

- Average production post ramp-up of:

- 21,780 tpa nickel and 4,640 tpa cobalt (Year 2 &ndash; 6) and;
- 19,620 tpa nickel and 4,420 tpa cobalt (Year 2 &ndash; 11)

- Average scandium oxide production capacity of 80 tonnes per year which can be readily expanded to 160 tonnes per year. The DFS conservatively caps sales at 10 tonnes per year for the life of mine.

- Pre-production capital cost estimate of US\$1.33 billion (A\$1.77 billion) (excluding US\$165m estimated contingency). The estimate reflects a significant increase in refining capacity, relative to the 2016 Pre-Feasibility Study, to provide the opportunity to increase production volumes.

- Significant economic and social benefits to local communities over the life of mine including employment, infrastructure upgrades, royalties, taxes and local community contributions.

Compared to the Pre-feasibility Study completed in 2016 and the Syerston Nickel Cobalt Project, New South Wales, Australia NI 43-101 Technical Report (Technical Report) completed in 2017, the total capital cost estimate for the Project has increased. This is due to a number of improvements and enlargement of the Project's scope, designed to deliver substantially increased revenue, EBITDA and return on capital. Improvements to the Project included upsizing the refinery capacity, increasing surge capacities and revising the mine plan to significantly bring forward future cobalt metal production, which will allow the Company to respond to the strong demand for battery raw materials from major automobile producers and battery manufacturers.&#65279;

Figure 1:

<http://www.globenewswire.com/NewsRoom/AttachmentNg/c3704172-67cf-4925-b140-09eac1c310e4>

Figure 2:

<http://www.globenewswire.com/NewsRoom/AttachmentNg/5bc2bd12-cc74-462f-a7a8-3464af711e0b>

The DFS assumed the Project will be designed and built by Clean TeQ in conjunction with SNC-Lavalin and McDermott International (collectively the Alliance), whereby the three parties will jointly manage engineering, procurement and construction. In parallel, Clean TeQ has been evaluating a competing fixed-price Engineering-Procurement-Construction (EPC) proposal received from one of China's largest engineering and construction groups. At the end of the quarter, Clean TeQ remained in discussions with both the potential Chinese EPC contractor and the Alliance partners, with a decision on the final delivery model expected during the third quarter of 2018.

With the DFS completed, Clean TeQ's focus has turned to finalising offtake discussions for the

production which remains uncontracted and securing funding for the Project. Once developed, the Project is expected to produce substantial volumes of high-purity, battery-grade nickel and cobalt sulphate &ndash; products in high demand from the electric vehicle industry. The Company is engaging with numerous parties in the electric vehicle supply chain who have indicated strong interest in securing a reliable source of supply from a safe jurisdiction. The Company is highly confident of securing binding long-term sales contracts for the uncontracted portion of production during the second half of 2018.

Securing the necessary finance to develop the Project is also a key priority. With the DFS completed, the banking syndicate, which includes Industrial Commercial Bank of China (ICBC), National Australia Bank, Natixis and Societe Generale, can now commence the detailed work toward finalising a binding term sheet for a debt finance facility. In addition, the Company is assessing a range of opportunities to raise the remaining equity required to build the Project. This includes negotiations involving potential project level investment, joint ventures, product prepayment and streaming/royalty transactions.

As outlined in the DFS, the current indicative schedule sees a final investment decision in early 2019 followed closely by commencement of construction. The DFS estimated a 24-month construction period, followed by a 24-month period of commissioning and ramp up. First production is expected in early 2021.

#### Modification 6 to Development Consent approved

During the quarter, the Company received formal approval for Modification 6 to the Development Consent from the New South Wales Department of Planning and Environment. The approval represented an important milestone as planning and execution of the Project progresses.

Modification 6 was submitted in January 2018 seeking changes to the accommodation facility at the Project which were deemed necessary to both optimise the mine plan and improve the amenity of the on-site workforce. The changes included the relocation of the accommodation facility from the main mine site to an adjacent property south of the mine on a property owned by Clean TeQ called &ldquo;Sunrise&rdquo; (see Figure 4).

Approval of Modification 6 also allows an increase in the camp&rsquo;s capacity from approximately 1,000 to 1,300 personnel during the construction phase. In addition, the modification permits Clean TeQ to use the camp for up to approximately 300 personnel during site-based campaigns such as shutdowns and maintenance.

Figure 3:

<http://www.globenewswire.com/NewsRoom/AttachmentNg/d53e2715-d5d1-44fd-bf5a-33d26604cebc>

#### Government & Community Consultation

Clean TeQ continued its active engagement across the local community and at all levels of Federal, State and Local Government. The Project enjoys broad support from local communities, particularly given the employment opportunities and economic activity it can deliver to the NSW Shires of Lachlan, Forbes and Parkes. During the quarter, Clean TeQ hosted the Mayors of Lachlan, Forbes and Parkes as well as other council leaders on a site visit to Clean TeQ Sunrise.

#### CLEAN TEQ WATER

Clean TeQ Water continued to work toward delivery of its existing contracts as well as building a pipeline of new business opportunities both within Australia and overseas.

#### Oman &ndash; Waste water treatment project

During the quarter, Clean TeQ made excellent progress towards completion of a significant supply contract with Multotec Process Equipment (Pty) Limited (Multotec), Clean TeQ&rsquo;s South African based

distributor. The contract is to design, procure and commission a Clean TeQ CIF® wastewater treatment solution at a minerals processing plant under construction in Oman. Construction of the Clean TeQ waste water treatment plant was completed in May and first stage cold commissioning was completed in June 2018. Construction of the mineral processing plant (which will be the source of waste water for the Clean TeQ plant) is expected to be completed during the third quarter, after which Clean TeQ will complete final commissioning and hand over. The plant is designed to remove toxic pollutants, sulphate, antimony and arsenic from wastewater from a flue gas desulphurisation scrubber at the minerals processing plant.

Figure 4 -

<http://www.globenewswire.com/NewsRoom/AttachmentNg/15f6d755-06a9-4166-9e81-0c532d541a4d>

Africa &ndash; Metals processing plant in Democratic Republic of Congo

Clean TeQ is also delivering a +A\$2 million contract to design, supply and commission a metals processing plant using Clean TeQ's proprietary Continuous Ion Exchange processing technology at a base metals project located in the Democratic Republic of Congo. As with the Oman contract, the project is being delivered to Multotec. During the quarter, works focused on procurement and manufacturing with construction on site expected to commence before the end of 2018.

Australia &ndash; Fosterville Gold Mine waste water treatment project

At the Fosterville Gold Mine, Clean TeQ has been engaged to design, supply and commission a 2 million litre-per-day Clean TeQ DeSALx® mine water treatment plant. The plant is designed to deliver a more sustainable water management solution by treating mine process water for reuse in the mine operations. Sustainable water management practices are becoming critically important in the mining industry as environmental regulations are tightened globally and water scarcity increases.

At the end of the quarter, the majority of the plant's components had been manufactured and delivered to site, with construction expected to commence in November 2018 before commissioning in Q1 2019.

China - Joint Venture with Hoyo for municipal waste water treatment

Works are continuing toward the construction of a 13,000 tonne per day waste water treatment plant using Clean TeQ's CIF ® technology. This project is being delivered via a joint venture between Clean TeQ and Jinzhong Hoyo Municipal Urban Investment & Construction Co., Ltd (Hoyo). During the quarter, key activities included completion of the environmental impact assessment and final works on the detailed design. While steady progress is being made toward securing various government approvals required before construction can commence, this process is taking longer than anticipated. Construction of the plant now expected to commence during the third quarter of 2018.

Business Development

Clean TeQ Water continued to develop new opportunities during the quarter, with a number of feasibility and pilot programs underway to allow clients to assess the benefits of Clean TeQ's ion exchange technology.

Notably, at the end of the quarter, construction of a mobile demonstration plant (see Figure 5) was close to completion, with the equipment expected to be shipped to a potential client in China by the end of July 2018. The pilot plant has been designed using Clean TeQ's CIF® technology to treat hardness from brines produced by reverse osmosis technology, to allow for further water recovery in a second stage reverse osmosis step. The pilot plant will be installed at a large coal-to-chemical plant in Northern China that is currently assessing water treatment technologies as it prepares for an expansion of operations.

Figure 5:

<http://www.globenewswire.com/NewsRoom/AttachmentNg/d51d4707-5394-40bb-a21e-c29fa869c075>

Meili Guotu Cooperative Framework Agreement

As part of Clean TeQ's strategy to build new opportunities in China, the Company signed a Cooperation Framework Agreement with Meili Guotu Ecological and Environmental Research and Design Institute (Meili) for the development and promotion of Clean TeQ's unique water treatment solutions. The Agreement will allow for the promotion and development of Clean TeQ's water purification technologies in China through joint research projects, incorporation of Clean TeQ's water treatment solutions in projects designed and implemented by Meili, and the joint promotion of technology solutions.

Meili is a design and research institute founded in 2017 to support the development of environmental technologies and project design. Meili is supported by Shanshui Environment Technology Inc. and CITIC Construction Co. Ltd. (a subsidiary of CITIC Group Corporation Ltd.) and is expected to assist CITIC Construction Co. Ltd in the execution of environmental construction projects in China and abroad as part of China's "One Belt One Road" initiative.

## TECHNOLOGY DEVELOPMENT

Clean TeQ's technology development team continued to develop the Company's capability in a range of innovative new technologies. The current focus is on further development of CIF® for water treatment and metals recovery, graphene oxide nanofiltration membranes and encapsulated bacteria technology.

### Continuous Ionic Filtration (CIF®) technology for nutrient reduction

The ongoing development of Clean TeQ's CIF® technology progressed during the quarter. A key focus area was on the development of the CIF® technology to remove nutrients, such as nitrogen and phosphorous, from waste water. High nutrient levels in waste water is a significant issue as they can cause algal blooms when discharged into waterways. This issue is particularly pressing in China, where recent changes to regulation are setting limits on the nutrient load allowable before water is discharged. Clean TeQ's technology is demonstrating highly effective and cost efficient nutrient removal.

### Continuous Ionic Filtration (CIF®) technology for lithium extraction

Building on Clean TeQ's expertise in the extraction of base metals using ion-exchange, the Company has also been actively investigating the use of hybrid ion exchange resins to extract lithium directly from salar and geothermal brines. The economics of the lithium extraction and purification process can be improved dramatically via direct extraction processes. When delivered using our CIF® technology, direct extraction will dramatically reduce the time and expense of extracting and purifying lithium for the lithium battery market.

### Graphene Oxide Membranes

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. 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 lifetimes, and lower maintenance.

During the quarter, work continued toward the development of processes with the potential to manufacture graphene membranes in quantities that will allow for testing in water treatment applications. A large volume of graphene oxide "ink" was successfully produced, with testing underway to effectively apply this "ink" to a membrane support. Further testing will continue during the second half of 2018.

### Clean Bio® Encapsulated Bacterial technology

Clean TeQ has made further progress on encapsulated bacterial technology. Encapsulated bacterial

technology provides a way of converting residual nutrients, such as ammonia and nitrate, to harmless nitrogen gas. Clean TeQ's technology, Clean Bio®, can be used as a standalone technology or in conjunction with the CIF® technology to provide a complete solution for nutrient reduction.

## CORPORATE

During the quarter, the Company was included in the S&P/ASX All Australian 200 Index. Inclusion in the index reflects the growing market capitalisation and trading liquidity in Clean TeQ's shares.

At a General Meeting held on 18 April 2018, shareholders approved the issue of shares pursuant to Tranche 2 of the A\$150 million Institutional Placement announced on 8 March 2018. Following the approval, on 24 April 2018, the Company issued 43,575,880 shares representing approximately A\$50 million in proceeds.

In addition to the Placement, which was heavily oversubscribed, Clean TeQ received a strong response to the Share Purchase Plan (SPP) which closed on 18 April 2018. Valid applications were received to subscribe for 4,836,593 shares, raising an additional approximately A\$5.5 million.

During the quarter, the Company also received a cash payment of approximately A\$4.8 million from the Australian Tax Office representing the refundable tax offset available under the Research and Development (R&D) Tax Incentive for FY17.

At the end of the quarter, the Company's cash balance was \$152.6 million.

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## COMPETENT & QUALIFIED PERSONS STATEMENTS

The information in this news release that relates to Mineral Resources is based on information compiled by Mr Lynn Widenbar, a member of the Australasian Institute of Mining and Metallurgy. Mr Widenbar is a fulltime employee of Widenbar and Associates. Mr Widenbar is a consultant to Clean TeQ and has sufficient experience which is relevant to the style of mineralisation and type of deposit and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Widenbar consents to the inclusion in this report of the matters based on their information in the form and context in which it appears.

The sections in this report that relate to the Clean TeQ Sunrise Ore Reserves are based on information compiled by; Mr Luke Cox, Mr Tim Harrison and Mr Lee White. Mr Cox is a full-time employee of Clean TeQ. Mr Harrison is a full-time employee of Clean TeQ and holds shares and options in the company. Mr White is employed by Kalem Group Pty Ltd and is engaged as an internal consultant to Clean TeQ.

Mr Cox, Mr Harrison and Mr White are all Members of the Australasian Institute of Mining and Metallurgy and each have sufficient experience relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the JORC Code 2012.

The qualified persons who are responsible for the disclosures regarding the DFS in this news release are Mr Lynn Widenbar, a member of the Australasian Institute of Mining and a member of the Australian Institute of Geoscientists (AIG) (for the Mineral Resource) and Mr Tim Harrison MAusIMM (CP Met) for the disclosures other than the Mineral Resource. Mr Harrison and Mr Widenbar are both Qualified Persons under the terms of NI 43-101. Mr Widenbar is a full-time employee of Widenbar and Associates and is independent of Clean TeQ. Mr Harrison is Clean TeQ's Principal Metallurgist and is not independent of Clean TeQ. Mr Harrison and Mr Widenbar (for the Mineral Resource only) supervised the preparation of the DFS and have reviewed and approved the scientific and technical information in this news release, including information relating to the DFS. Mr Harrison has also verified the technical data disclosed in this news release.

An updated NI 43-101 technical report with respect to the Clean TeQ Sunrise Project will be filed on SEDAR

and with other applicable authorities within 45 days of the announcement of the DFS results on 25 June 2018.

#### 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, the Clean TeQ Sunrise Project, 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: the completion of project financing; the timing and commencement of construction at the Project; the making of a final investment decision in early 2019; the decision on a final project delivery model during the third quarter of 2018; finalisation of product offtake agreements; the securing of long-term sales contracts for the uncontracted portion of production during the second half of 2018; estimates for construction, commissioning and ramp up timing at the Project, including first production in early 2021; and anticipated construction and/or completion of the various Clean TeQ Water projects.

In addition, all of the results of the DFS constitute forward-looking statements and forward-looking information. The forward-looking statements related to the DFS in this Quarterly Activities Report include cash flow forecasts, projected capital and operating costs, mine life and production rates and the financial results of the DFS. These include statements regarding the DFS IRR; the Project's after-tax NPV; capital cost; average C1 operating costs before and after by-product credits; a mine life estimate; and employment opportunities for local communities.

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.

<sup>1</sup> Net Present Value calculated using 8% discount rate

<sup>2</sup> AUD/USD 1/0.75 exchange rate of applied for life of mine

<sup>3</sup> Net Present Value calculated using 8% discount rate

<sup>4</sup> AUD/USD 1/0.75 exchange rate of applied for life of mine

<sup>5</sup> C1 Cash Cost includes mining, processing, site overheads (including administration), haulage and port charges

<sup>6</sup> Credits from cobalt sulphate, scandium oxide and ammonium sulphate

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