

Melbourne, 24th November, 2014

Clean TeQ agrees to acquire Syerston Project from Ivanhoe Mines Group

Highlights:

- August 2014 drilling to underpin further in-fill drilling to deliver a maiden scandium resource in coming months.
- Test work underway using Clean TeQ proprietary technology to demonstrate a significant increase in scandium value compared to current industry best practice.
- Discussions commenced with potential offtakers for scandium supply.
- Clean TeQ Metals Pty Ltd formed to develop Syerston as the foundation for its new strategy in metal recovery.

Clean TeQ Holdings Limited (CLQ: ASX) is pleased to announce it has acquired the Syerston Project in central New South Wales from a wholly owned subsidiary of Ivanhoe Mines Ltd (TSX: IVN).

The purchase is a significant first step in implementing the Board's strategy to build Clean TeQ's metal recovery business by identifying and securing projects which are able to be transformed into world class assets by utilising Clean TeQ's innovative and disruptive technologies.

Acquisition Structure

Clean TeQ Metals Pty Ltd, a wholly owned subsidiary of Clean TeQ Ltd, has agreed to acquire all the outstanding shares in Ivanplats Holding Company Pty Ltd, the Australian holding vehicle for Ivanhoe Mines Group's interest in the Syerston Project. As part of the acquisition, Clean TeQ Metals will acquire the following:

- 100% title to the Syerston exploration license and the six mining lease applications underlying the Project;
- Freehold interest in four separate farming properties, comprising 2,884 hectares in total, underlying the mineral title; and
- Water rights owned by the project company.

The consideration for the acquisition will be paid at completion, which is expected in the first quarter of calendar 2015, and comprises:

 A\$1.0 million in Clean TeQ scrip, to be satisfied through the issue of shares in Clean TeQ to Ivanhoe Mines, priced at a 5-day VWAP at completion;



- A\$100,000, payable in cash at completion; and
- A 2.5% gross royalty on the Project payable to Ivanhoe Mines.

Completion will occur on satisfaction of a number of conditions which are customary in a transaction of this nature, including Clean TeQ shareholder approval. Additionally, Clean TeQ will complete metallurgical test work from drill samples taken from the Project area.

Clean TeQ has also issued Ivanhoe Mines a promissory note with a face value of A\$3 million, payable in three years' time and carrying a zero coupon. The note will enable Clean TeQ to evaluate options for retaining the freehold title in the farming properties as part of a development plan over the next three years. In the event that ownership of the freehold is not deemed critical to the project development plan, it can be sold, with the proceeds used to satisfy redemption of the note.

The Agreement provides an excellent opportunity for both companies, as it allows Ivanhoe to focus on its projects in Africa, while still realising value in the Project through its Clean TeQ shares, the promissory note and future royalties.

Clean TeQ Chairman Sam Riggall said today: "The deal announced today with Ivanhoe Mines is an important milestone for Clean TeQ and its shareholders. It is based on the simple premise that Clean TeQ's suite of ion exchange technologies can unlock significant value in metal extraction and purification processes, whether from primary mine production or industrial process streams. We are particularly excited to have the opportunity to continue our ground-breaking work in scandium recovery, a metal we believe has enormous significance for the next generation of high performance alloys and fuel cells for aerospace, transportation and energy markets. Our significant investment in recent years in scandium recovery technology has positioned us well to be a market leader in this field."

Project History

The Syerston Project is located 2km from the regional town of Fifield (350km northwest of Sydney). The Fifield District is noted for its intense magnetic geological anomalism and significant occurrences of minerals containing platinum, nickel, cobalt and scandium. The district remains the location of Australia's only historic source platinum production, with approximately 20,000 ounces of the metal being extracted from deep leads between 1887 and the mid-1960s.

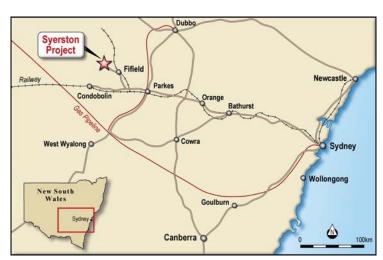


Figure 1: Syerston Scandium Project Location



Despite promising indications of platinum mineralization, few companies have succeeded in identifying economic grades of PGM mineralisation.

In 2000, SNC-Lavalin completed a feasibility study for Black Range Minerals Limited, the owner of the Project. The study focused on a variety of development options for a nickel laterite operation and throughout 2002 and 2003 work focused on project financing.

In 2004, Ivanhoe Mines acquired the Project from Black Range Minerals and continued to progress development studies for the resource, focussing principally on extracting nickel and cobalt from the laterite. As part of its studies, it completed an in-fill RC drill program comprising of 174 holes over 6,748 metres. The extensive drill samples were assayed for key minerals, including nickel, cobalt, platinum and scandium.

Throughout the history of the Project, the scandium occurrences in the assays remained little more than a geological curiosity. However, as industrial uses for scandium have grown, so has its importance to the Project.

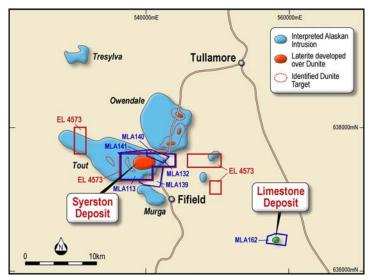


Figure 2: Syerston Project Tenements Acquired

The Fifield District remains one of the few known locations in the world where scandium occurs naturally in potentially economic concentrations. Grades averaging over 400 ppm have been defined in resources on the boundary of neighbouring license areas.

The extensive assays from historic drill campaigns show the presence of significant scandium grades across the Project area. Recent drilling completed by Ivanhoe Mines in August 2014 supports the historic data, with even higher grades being encountered trending south and east across the property. Clean TeQ intends to complete the drill campaign to define a scandium resource in coming months.



<u>Technology – The Key to Unlocking Value in Scandium Extraction</u>

Clean TeQ's proprietary ion exchange technology has been primarily developed for the extraction and purification of base and strategic metals. While not common in the western world, ion exchange technologies for the recovery of metals have been used extensively and successfully for many decades in the former Soviet Union.



Figure 3: A sample of ore taken from historic drill core at Syerston

Between 2004 and 2008, the application of Clean TeQ's technology for metal recovery from lateritic ores was developed in collaboration with BHP Billiton through an A\$8 million investment. Clean TeQ's unique resin-in-pulp (RIP) process, utilising a combination of continuous ion exchange sorption and desorption processes, was proven to extract and concentrate nickel and cobalt directly from acidic lateritic pulps at a much lower cost than conventional routes.

Following successful completion of piloting for nickel recovery, Clean TeQ has applied its technology across a number of industrial applications. In the past three years, it has worked closely with the titanium dioxide industry to develop a cost-effective alternative to conventional solvent extraction processes to recover scandium from titanium dioxide intermediate process streams.

This work has recently culminated in the delivery of a scandium recovery pilot plant to a large Japanese titanium dioxide producer. The pilot plant is currently being commissioned.

Data from the pilot plant will be used to confirm the production cost of scandium oxide from this industrial source and allow for multiple process streams to be trialled. Subject to successful piloting and agreement on commercial terms, a review of the options for full scale development in Japan will be undertaken.

Clean TeQ believes that its scandium technology provides a significant capital and operating cost advantage over conventional solvent extraction processes.

While the process for recovery of scandium oxide from primary mine production will have its own specific flow sheet, Clean TeQ believes



Figure 4: Resin-In-Pulp Pilot Plant

Australian Securities Exchange & Media Announcement

Clean TeQ Holdings Limited (ASX: CLQ)



the foundation technology and ionic extraction and purification chemistry of the process will remain the same.

At Syerston, leaching and extraction work has commenced on samples taken from both historic and recent drill campaigns. The mineralisation is hosted in a weathered lateritic material typically only a few metres below the surface. Therefore, mining of ore is expected to be relatively simple, with the focus on the efficiency of the leaching and extraction steps, in particular acid and reagent consumption and metal recovery.

Following successful laboratory testwork, Clean TeQ intends to deploy its pre-constructed resin-in-pulp pilot plant (Figure 4) in the field to validate the technology and economics. The immediate availability of this plant will allow a fast-tracking of test work while significantly reducing development risk and cost.

About Scandium

Scandium is a transitional metal, often classified as a rare earth element. It has been recognized for many decades as a metal conferring exceptional alloying properties for the production of light-weight, strong sheet and component metals (particularly aluminium). However, its uptake has been severely limited by its relative scarcity in mineable economic concentrations. As one analyst has noted, scandium "is devilishly difficult for mother nature to concentrate."

All scandium produced in the world today is a by-product from the extraction of other elements, usually uranium, nickel and cobalt. It is usually sold as a high purity oxide (Sc_2O_3 at 99.9%). There is no primary mine production of scandium anywhere in the world today. The lack of secure supply has led to significant volatility in pricing, with scandium oxide prices ranging between \$2,300/kg to \$5,200/kg over recent years (Source: QYResearch Scandium Oxide Industry Research Center, 2014).

The absence of reliable, secure and long term production has limited commercial applications of scandium in most countries. This is despite a comprehensive body of research and a large number of patents which identify significant benefits for the use of scandium over other elements. Key growth markets include:

- Strengthened aluminium-scandium alloys for the production of cheaper, lighter and stronger aircraft.
- Scandia stabilized zirconia has a growing market demand for use as a high efficiency electrolyte in solid oxide fuel cells, such as those produced by Bloom Energy.
- High performance athletic equipment, such as aluminium baseball bats, bicycle frames and lacrosse sticks.
- A 'conditioner' in mercury vapour lamps to enable light to be emitted that closely resembles sunlight.

Australian Securities Exchange & Media Announcement

Clean TeQ Holdings Limited (ASX: CLQ)



In 2010 the European Union identified aluminium-scandium alloys as one of the five most critical emerging technologies in the automotive engineering and aerospace industry (EC Enterprise and Industry Working Group, *Critical Raw Materials for the EU*, 2010). China has also placed a high strategic priority on securing scandium supply as its rare earths industry is facing significant environmental management issues.

Market Development

The lack of any reliable supply of scandium has been the limiting factor in development of this market. However, this has the potential to change rapidly as scandium from primary mine production is brought on stream and expanded.

Clean TeQ is confident that through the application of its proprietary technology to the Syerston Project it will have the potential to develop the world's first primary source of scandium oxide production for industries requiring reliable, cost-effective supply of this highly strategic metal. This could be particularly important for the aluminium industry, where low prices, systemic over-capacity in smelting and low growth in new applications could be overcome by a radical re-shaping of the performance characteristics of the metal and its value in use in many new applications.

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About Clean TeQ Holdings Limited (ASX: CLQ) – Based in Melbourne, Clean TeQ, using its proprietary Clean-iX continuous ion exchange technology, is a world leader in resource recovery and industrial water treatment.

For more information about Clean TeQ please visit the Company's website at www.cleanteq.com.

The information in this announcement regarding the Syerston Project has not been prepared by, reviewed, or approved, by Ivanhoe Mines, and remains the sole responsibility of Clean TeQ.

Presentation - November 2014







Clean TeQ Metals: Scandium & Syerston

A new Clean TeQ Business leveraging technology to develop new strategic metal markets

Clean TeQ Holdings Limited (ASX: CLQ)



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All amounts including "\$" or "A\$" are in reference to Australian Dollars unless stated otherwise.



Clean TeQ Management Team



CHAIRMAN & CEO - Sam Riggall

Sam is a graduate in law and commerce and an MBA from Melbourne University. He was previously Executive Vice President of Business Development and Strategic Planning at Ivanhoe Mines Ltd. Prior to that Sam worked in a variety of roles in Rio Tinto for over a decade covering project generation and evaluation, business development and capital market transactions.



GENERAL MANAGER - METALS - John Carr

John Carr is a graduate in chemical engineering from Melbourne University and an MBA from Deakin University. John has previously worked as a process engineer for Rio Tinto. John is General Manager and responsible for the Metals Division and has spent almost 8 years with the company developing its technologies for metal extraction and water treatment.



FOUNDER & CTO - Peter Voigt

Peter Voigt is a graduate in chemistry and a MAppSc from Royal Melbourne Institute of Technology. Peter established Clean TeQ in 1990 and became a director of the Company on 10 September 2007 and CEO in 2010. In November 2013 Peter moved to become the Chief of Innovation and Executive Director.



GENERAL MANAGER GLOBAL WATER – Ealden Tucker

Ealden has over 20 years' senior Global Operations experience within Multi National Company environments and geographies. Previously, he was the Managing Director for Armocon Technologies China, and prior to this was the GM, Country Manager for Flowserve Valves & Controls China, and various senior positions during his 18 years with Tyco Flow Control.



CFO - Tony Panther

Tony Panther is a graduate in accounting and law. Tony has previously worked as a CFO in an ASX listed biotechnology company and as a senior auditor in a global accounting firm. Tony joined Clean TeQ in January 2013 and is responsible for the Company's financials.



Clean TeQ Technology | A Proven Track Record















Base Technology Development in Metals

- ARRICT 1951 2000
- 30+ full scale plants in operation mainly in uranium and gold recovery.

Clean TeQ Development in Metals

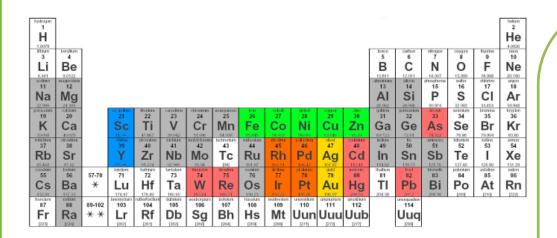
- 2004: Extraction of REEs from acid leached ores demonstrated
- 2006: Extraction of Scandium from acid leached laterite ore demonstrated
- 2007: Extraction of Nickel and Cobalt from Acid leached laterite demonstrated
- 2008: License to BHPB for Nickel and Cobalt.
- 2009: Extraction of **Uranium** from alkaline and hyper-saline leachates demonstrated
- 2010: Extraction of Gold from thiosulphate leached ore demonstrated
- 2013: Extraction of Copper from acid leach oxide ore demonstrated
- 2012-2014: Extraction of Scandium from TiO₂ process streams demonstrated

CLQ has filed over **several patents** and has invested **over A\$15M on Research, Development and Demonstration**





Clean TeQ Technology | Clean-iX® Benefits



*Lanthanide series	57	58	59	60	61	62	63	64	65	66	67	68	69	70
Lanthamue series	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Но	Er	Tm	Yb
			140.91		0.49			157.25		162,50	164.93		168.93	
* * Actinide series	actinium	thorium	protectinium	uranium	neplunium		americium	curium	berkelium	calfornism	einsteinium	fermium	mendelevium	nobelium
	89	90	91	92	93	94	95	96	97	98	99	100	101	102
	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No
	1227	232.04	231.04		[237]	[244]	12439	[247]	[247]	[251]	[252]	[257]	[256]	[259]

Target Metals:

Base Metals

Rare Earth Elements

Platinum Group Metals

Radioactive Elements

Precious Metals

- Clean-iX[®] combines the processes of:
 - Leaching
 - Extraction
 - Elution/Desorption
- Clean-iX® recovers single or multiple metals.
- Key Advantages:
 - Higher metal recovery.
 - High selectivity for target metals, reducing system size and reagents.
 - Multiple metal products produced from one process.
- Benefits compared to conventional routes:
 - Simplification of process flow sheet significantly reducing capital costs.
 - High efficiency extraction and reagent utilisation, reducing operating costs.



Clean TeQ Metals | A New Strategic Direction



- ➤ Clean TeQ Metals ("CTM") formed to leverage CLQ IP and partnerships to develop metal markets for the next generation of industrial products.
- > Targeting projects where:
 - CLQ's IP and expertise will provide a value uplift;
 - Mining asset is geologically de-risked but requires process innovation;
 - Clean TeQ is able to take a lead role, through direct investment and/or acquisition.

> Key Projects for CTM:

Strategic Metals: Sc, PGMs, REE's Next Gen Manufacturing

Low Grade Ores: Cu, Ni, Co, Zn Next Gen Commodity Mines

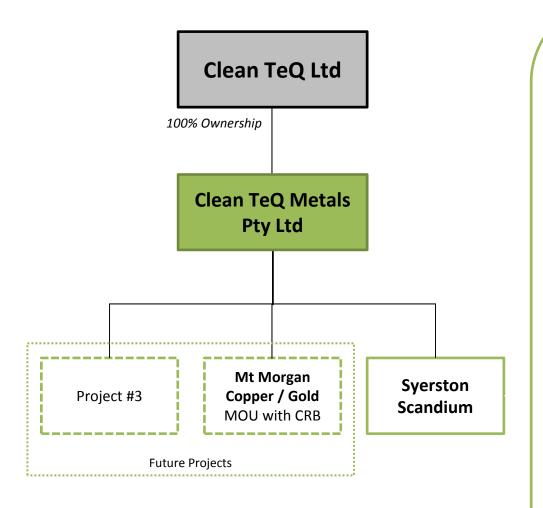
Polymetallics: Cu/Au, Au/Ag Next Gen Metal Mines

Tailings: Au, Ag, Ni, Co, Cu, Zn Value Creation from Wastes



Clean TeQ Metals | Structure





- Clean TeQ Metals ("CTM") formed to focus on acquisition or investment and development of assets utilising its technology.
- Wholly owned subsidiary of CLQ.
- Dedicated management team to be established for each Project.
- Technology License from CLQ for primary ore and tailing metal recovery.
- First project identified and under MOU with Carbine Resources Mt Morgan Gold/Copper Mine.
 (see announcement 19/11/2014)
- Second project identified and acquired
 Syerston Scandium Project.



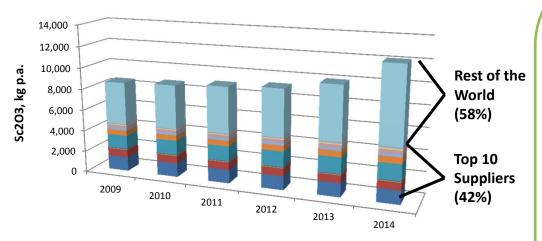


Scandium | The Next Strategic Metal

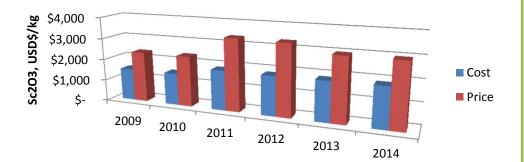




Historical Global Scandium Oxide Production



Historical Global Scandium Oxide Price & Cost



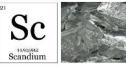
(Source: QY Research Scandium Oxide Research Centre)

- Scandium, or Scandium Oxide (Sc₂O₃) as it is commonly marketed has enormous potential to play a key role in the emerging aerospace, transport and energy sectors.
- Main source: by-products or stockpiles.
- Due to limited supply, the total global consumption ranges from **5-12tpa**.
- Supply is heavily fragmented.
- 2014 Average price was USD\$2,800-3,800/kg Sc₂O₃.
- 2014 Average production cost was USD\$1,800/kg Sc₂O₃.
- Largest potential market growth areas are: Al-Sc Alloys and Solid Oxide Fuel Cells

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Scandium | Al-Sc Alloys













(Global Demand. Source: Airbus GMF)

- Component parts for commercial aerospace and automotive industries.
- 0.2-0.8% Sc in Al alloys produces a lighter material with increased strength, weldability, reduced corrosion.
- Aircraft using Al-Sc alloys will have:
 - 15% reduction in manufacturing cost; and
 - 15% reduction in weight (increasing fuel efficiency).

(Source: QY Research Scandium Oxide Research Centre)

- Use of Al-Sc alloys in automotive industry provides additional demand.
- Largest market potential with >300tpa, depending on Sc₂O₃ cost. (Source: Kaiser Research Centre)



Scandium | Al-Sc Alloys





The world's largest commercial aerospace and automotive companies are investing in the use of scandium-based alloys:



 Scalmalloy® Al-Mg-Sc alloy developed for fuselage and high fatigue areas.



 Boeing and Ford have filed a patent for a Al-Mg-Sc alloy, for use for aircraft and automotive components.



 Master alloy manufacturer developing scandium-aluminium master alloys for the aerospace industry and other transport sectors.



 Aluminium manufacturer who is developing high performance alloys to use in next gen aircraft components.

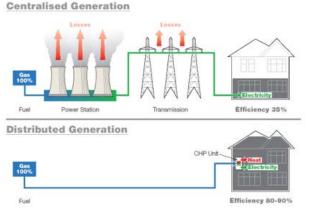
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Scandium | Solid Oxide Fuel Cells

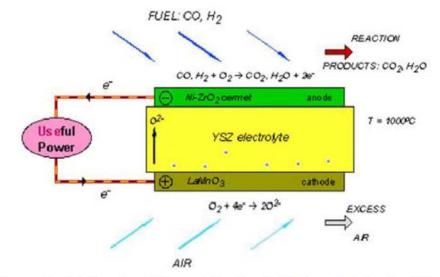








(Source: SOFC Power)



Source: Public information. QYResearch Scandium Oxide Research Center; Nov, 2014

- SOFC's convert gas into power, heat and water.
- SOFC's use hard ceramic materials as the electrolyte – normally yttrium-stabilised zirconium
- 85% energy efficient (with heat recycle)
- Large potential for low cost "green" energy, for conversion of natural gas to decentralised energy production.
- Sc-stabilised zirconium electrolyte allows for operation at much lower temperatures and extends operating life:
 - Lower CAPEX and OPEX.
- The main Sc-based SOFC producer, Bloom Energy, is predicting a Sc₂O₃ demand of 40tpa over the next 5 years.

(Source: Kaiser Research Centre)

🗯 CleanTeQ

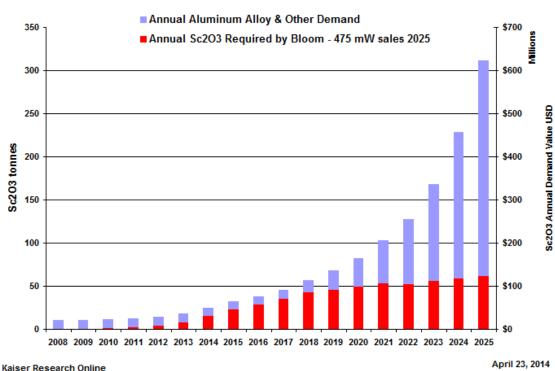
Scandium | Future Demand





- > Total demand could exceed 300tpa Sc₂O₃, with a market value of USD\$450-600M.
- > Key considerations for developing the scandium market are:
 - Sustainable long term supply for the development of the alloy market; and
 - Lower long term price point.
- > CTM is focusing on end users and product manufacturers to become partners in development of the scandium supply chain.

Projected Scandium Market Value at \$2,000/kg Sc2O3





Scandium | Key Issues in Industry





- ➤ Australian high grade scandium mines represent the most promising long term scandium source, with >20kt of Sc in-ground (equivalent to 30-100 yrs of demand).
- ➤ If high grade and large resource base are all that are required to meet demand, why isn't there an established scandium market?
- Price is the other barrier to market growth:
 - A Sc₂O₃ price of less than USD\$1,500/kg.
 - Mines using conventional technologies have high operating costs and require high capital costs for construction.
 - To date, projects are built around a price of USD\$2,000/kg.
 - A credible long term offtake partner for greater than 100tpa of Sc₂O₃.
 - Offtake agreements for large scale scandium required to secure scandium market.



Scandium | The CTM Scandium Mine





Clean TeQ Metal's Approach:

- Using in-house proprietary IP, CTM is targeting Sc₂O₃ production at <USD\$1,500/kg.
 - Clean TeQ's development of scandium recovery will allow CTM to produce a lower cost processing route, targeting a lower capital and operating cost than the current industry standard.
- 2. Leveraging networks in the aerospace and aluminium markets, there is the potential to establish a credible long term offtake partner for high amounts of Sc₂O₃ within a short period of time.
 - CTM has already begun discussions with key offtake partners with the aim of a long term scandium offtake agreement to be established.

Applying these benefits will make CTM the "market maker" for scandium.



Scandium | Syerston Scandium Project





- CTM has agreed to acquire the Syerston Project with the following structure:
 - CTM has acquired 100% of the shares of Ivanplats Holding Company Pty Ltd ("IHC") from Ivanhoe Mines subsidiary Australia Nickel and Platinum Holding Co P/L.
 - IHC's wholly owned subsidiary, Ivanplats Syerston Pty Ltd ("ISPL") owns the Syerston Project in NSW.
 - CTM has purchased the company for:
 - \$1M of CLQ scrip at a 5 day VWAP;
 - \$100k in cash; and
 - \$100k of in-kind development via a metallurgical test work program for Sc (currently underway).
 - The Agreement also includes a 2.5% royalty on net revenue for metals sold from the Project.

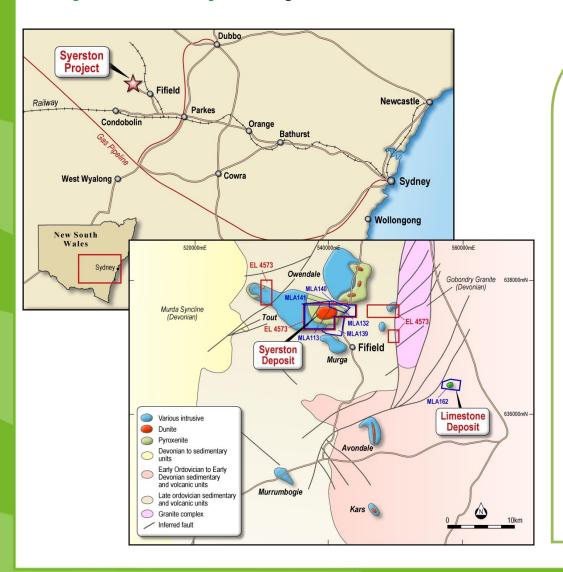
(Please see ASX release dated 24/11/2014 for further details on the agreement.)



Syerston | Project Location







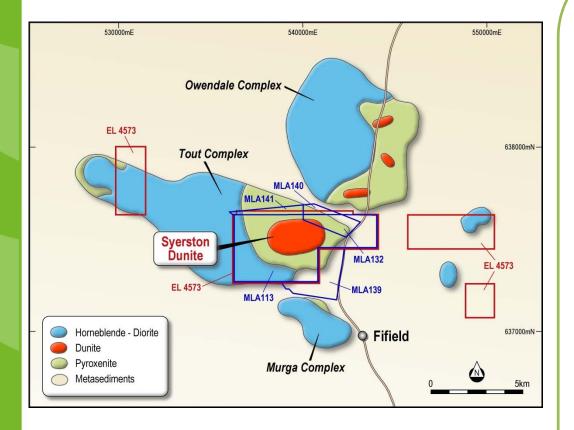
- The Syerston Project consists of:
 - An Exploration License over the deposit;
 - Mining Lease Applications (including limestone deposit);
 - Freehold land over portion of project area;
 - Water rights.
- Exploration begun in 1986 for PGMs. Drilling showed considerable Ni-Co mineralisation.
- Extensive drilling and development to date:
 - 2000: Black Range Minerals completed a feasibility study for Ni/Co, including 732 RC drill holes and 9 bulk met samples.
 - 2004: Ivanhoe Mines completed another feasibility study for Ni/Co after acquiring the project from Black Range, including an additional 175 RC drill holes for 6,748m.



Syerston | Project Geology







- The Syerston deposit is hosted within a lateritic weathered profile.
- The Tout Ultramafic Complex underlies the Project, with the dunite core at the centre inherently richer in nickel, cobalt, scandium and platiniods than the outer mafic zone.
- Historically, no focus was given to scandium at Syerston, which has shown in this mineralisation to contain significant concentrations of Sc in areas.
- Neighbouring EL's have defined resources of approximately 400ppm Sc.
- Historical and recent drilling results will be used to establish a JORC compliant scandium resource and to develop a Sc-focused drilling program.



Syerston | Metallurgical Development





Ore sample taken from historic drill core at Syerston:



- Clean TeQ has already started development work using historical sample from the Syerston Project.
- This work forms the basis for the scoping study to be completed within the coming months.
- This work will confirm the flow sheet for processing and the high level economics of the process.
- New metallurgical samples will be obtained in future drilling campaigns and used for confirmation and optimisation testing.



Thank You



Clean TeQ Metals Pty Ltd

A wholly owned subsidiary of Clean TeQ Limited



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Mr Sam Riggall Chairman Clean TeQ

Mr Peter Voigt Exec Director Clean TeQ

