ASX Announcement
23 October 2013

ASX Code: TPL

# TPL Corporation receives Module 1 of Scoping Study to build a Ferrochrome Smelter in Zimbabwe and plans to commission the preparation of Module 2

**Highlights**

- **Module 1 of the Scoping study recommends the construction of a DC Arc Furnace as preferred technology**
- **The high grade feedstock (chrome concentrate) enables production of a very high-grade ferrochrome with extremely low trace elements, unable to be produced by South African competitors**
- **The proposed ferrochrome product commands a premium price over standard grade high carbon ferrochrome with few suppliers in the world**
- **Chrome is the critical ingredient in stainless steel and there is no known substitute**
- **Module 2 of the Scoping Study (more detailed study) to commence shortly**
- **Fanshawe Claims Exploration Target of between 15Mt to 20Mt at 10% to 14% $Cr_2O_3$ to a depth of 0.5m*** (TPL: ASX Announcements 19 August 2013 and 2 September 2013)

***** *(The potential tonnes and grades are conceptual in nature and there is insufficient exploration to estimate a Mineral Resource at this stage and that it is uncertain if further exploration will result in the estimation of a Mineral Resource)*

On 19 August 2013, TPL Corporation Limited, (**TPL** or **the Company**) announced that it had entered into a Heads of Agreement to acquire an option to subscribe for a 70% equity interest in African Chrome Fields (Pvt) Ltd the owner of a chrome mine, chrome mining concessions and a processing operation established in 2008 in Central Zimbabwe.

As part of the Heads of Agreement, TPL undertook to commission a scoping study to construct a ferrochrome smelter in Zimbabwe. The purpose of this announcement is to describe the report's findings.

It is recommended that the Company use a DC Arc Furnace because the DC Arc Furnace technology suits the chrome fines contained in the African Chrome Fields' chrome concentrate.

African Chrome Fields' existing plant is designed to produce (and has previously produced) a very high-grade chrome concentrate in form of chrome fines as opposed to a lumpy chrome concentrate. This generates a premium chrome concentrate of >50%

**TPL Corporation Limited**
**www.tplcorporation.com.au**
Suite 6, 245 Churchill Avenue Subiaco
Tel: +61 8 9217 3300 Fax: +61 8 9388 3006
PO Box 1273 Subiaco WA 6904
info@tplcorporation.com.au

$Cr_2O_3$, Cr:Fe of >2:1 and <2%Si (against a more traditional chrome concentrate of 40-44% $Cr_2O_3$ produced in South Africa).

The African Chrome Fields plant was shut down in 2011 because the Zimbabwe Government imposed a ban on the export of 'unprocessed concentrate' as a measure to promote the development of a downstream processing industry of ferrochrome in Zimbabwe.

With the combination of a chrome concentrate capable of being produced from African Chrome Fields' existing processing plant and a DC Arc Furnace, a very high-grade ferrochrome with extremely low trace elements can be produced. It is a product required in the specialty stainless steel tool industry with few suppliers. The largest supplier is Kazchrome of Kazakhstan and additional supply comes from Turkey. It is also interesting to note that South Africa, the 2nd largest producer of ferrochrome in the world with some 32%, cannot produce this very high-grade ferrochrome.

The Fanshawe claims have an Exploration Target of between 15Mt to 20Mt at 10% to 14% $Cr_2O_3$ to a depth of 0.5m*. The lumpy chrome potential has not been defined nor the potential for platinum group metals on certain claims. (TPL: ASX Announcements 19 August 2013 and 2 September 2013)

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**Module 2 of the Scoping Study**

The Company intends to commission Module 2 of the Scoping Study in the coming days. This Module will generate a more detailed financial module and provide the Company with an operating budget and investment evaluation.

Investors should note that the purpose of this Scoping Study is to determine whether it is feasible to build a ferrochrome smelter in Zimbabwe. The Scoping study is **NOT** intended to establish a JORC resource on African Chrome Fields' mining claims, which have been the subject of previous mining. No drilling or mineral exploration is being undertaken as part of this Scoping Study.

The Directors will make a decision as the Scoping Study progresses as to whether funds will be expended to carry out further exploration test work to upgrade the Company's knowledge of the mineralization of African Chrome Fields' claims to a JORC reportable status.

**Zimbabwe Investment Authority and Application to Export Chrome Concentrate**

The Company intends to lodge an application with the Zimbabwe Investment Authority seeking approval to own a 70% equity interest in African Chrome Fields. As part of this application, we also intend to apply for a quota to export a fixed tonnage of chrome concentrate. It is the intention of TPL and African Chrome (subject to receiving a quota or access to a quota) to use the profits from export of chrome concentrate to generate sufficient cash reserves to build the ferrochrome smelter, subject to final scoping and feasibility studies and the like.

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Exercise of the option and completion of the acquisition of Fanshawe and African Chrome Fields is subject to Australian and Zimbabwe regulatory approval including, in particular, Zimbabwe Investment Authority approval, TPL shareholder approval and any other ASX approvals.

**Contact Details**

For further information, please contact:

Hugh Warner
Executive Chairman
TPL Corporation Ltd (Aus)
Ph: +61 413 621 652

Harry Greaves
Non-Executive Director
TPL Corporation Ltd (Zim)
Ph: +263 772 144 669

**Competent Person Statement**

The information in this announcement that relates to Exploration Targets, Exploration Results and Mineral Resources is based on information compiled by Mr Roger Tyler. Mr Tyler is a consulting geologist to the Company.

Mr Tyler is a member of the Australasian Institute of Mining and Metallurgy. He has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Tyler consents to the inclusion of the matters based on his information in the form and context in which it appears.

**Capability Statement: Summary of Author of the Scoping Study**

**Colin John Bain CA (SA), ACMA** Colin started working for the only stainless steel producer in South Africa in 1979; namely Middleburg Steel and Alloys (MS&A) (formally a subsidiary of Barlows). At that time MS&A was also the second largest ferrochrome producer in the world. At various times Colin held the positions of financial manager for both the steel and ferrochrome divisions. He also held the position of marketing director for the ferrochrome division until the latter part of 1991, at which time MS&A was acquired by Samancor.

MS&A pioneered the DC Arc ("Plasma") technology for the use in ferrochrome smelting, with 2 of the original DC Arc furnaces still operating today.

Colin, together with five colleagues created and built an independent ferrochrome producer, that being Hernic Ferrochrome, which was started in May 1995. Initially Colin held the position of financial director but assumed the role of CEO in 2001 and retained that position until 2006 when he sold out is equity in the company.

Hernic Ferrochrome underwent four rounds of expansion projects from 1995 – 2005 and in so doing became the 4$^{th}$ largest ferrochrome producing company in the world.

From 2001 – 2002 Colin simultaneously held the position of CEO for Hernic Premier Refractories, a company created to acquire the former Iscor Refractories business in South Africa. This business was sold in 2002 to Vesuvius Refractories.

Colin has recently established a financial advisory and consultancy firm, based in Johannesburg, South Africa.

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**Details of the Heads of Agreement and Chrome Assets**

Pursuant to the terms of the Heads of Agreement and subject to certain conditions, TPL has acquired a 12 month option to subscribe for new shares representing 70% of the fully diluted capital of Fanshawe Mining Services (Pvt) Limited ("Fanshawe") and African Chrome Fields (Pvt) Limited ("African Chrome Fields"). Farvic Consolidated Mines (Pvt) Limited ("Farvic") will hold the remaining 30% equity interest in both Fanshawe and African Chrome Fields. Farvic is a Zimbabwean registered company that is compliant with Zimbabwe Indigenisation Legislation.

The exercise of the option is subject to satisfaction of a number of conditions precedent including Farvic completing its planned capital reorganisation of both Fanshawe and African Chrome, within 90 days of execution of the HOA. This capital reorganization has been completed.

Fanshawe is the holder of approximately 150 eluvial chrome mining concessions (base metals claims) covering approximately 60 sq kms located in 6 areas along the flanks of the Great Dyke belt in Central Zimbabwe. They cover both eluvial chrome and lumpy chrome deposits although only the eluvial deposits have been exploited to date. These eluvial deposits of concentrated chrome occur fairly continuously along the flanks of the Great Dyke, to a depth of up to 1.5m.

The Fanshawe claims have an Exploration Target of between 15Mt to 20Mt at 10% to 14% Cr2O3 to a depth of at least 0.5m*. The significant lumpy chrome potential has not been defined nor the potential for platinum group metals on certain claims.

African Chrome Fields is the owner of a modular chrome recovery plant consisting of a washing plant, spiral concentrator set and two magnetic separators which produces a chrome concentrate and a magnetite product. This plant is located on Fanshawe mining concessions at Chinyika on the Great Dyke. Water for the washing process is readily available from boreholes and the nearby Sebakwe dam. The plant is run on mains electricity, supplied by the National Grid. The existing plant and equipment is capable of processing approximately 30,000 tonnes per month of feedstock to generate approximately 3,000 tonnes of chrome concentrate per month. **Note:** African Chrome Fields does not have a JORC reportable resource and so the Company is **unable to say** that this plant can produce such quantities of ore from African Chrome Fields' claims, the subject of previous mining operations however, the design capacity has not changed.

Investors should note that there is a Zimbabwe Government imposed ban on the export of 'unprocessed chrome' from Zimbabwe. As a consequence of this ban, African Chrome holds a stockpile of processed and unprocessed chrome concentrate. The ban on the export of chrome concentrate was, in part, enacted to promote the development of a downstream processing industry of ferrochrome within Zimbabwe.

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***EXTRACT FROM: FEASIBILITY OF NEW FERROCHROME SMELTING TECHNOLOGY IN ZIMBABWE, prepared for TPL Corporation Ltd October 2013***

**CHROMIUM AND THE MARKET MINING**

Mining of chromite is undertaken through either open-pit or underground mining methods. The most intensive chromite mining in the world is now in the Bushveld Igneous Complex in South Africa.

According to the United States Geological Survey, world resources of chromite exceed 11 billion tonnes, which is sufficient to meet world demand for many centuries. South Africa and Zimbabwe hold about 90% of the world's known economic chromite reserves and resources. World production of chromite in 2012 was nearly 24 million tonnes, with South Africa being the largest producer of chromite and the second largest producer of ferrochromium (after China), followed by Kazakhstan and India. Other important countries with chromite deposits include Brazil, Finland, Russia, Turkey and Zimbabwe.

With the increased world demand, underground mining has become the most common mining method. Underground mining of stratiform deposits is most often difficult depending on the seam thickness (0.25 - 1.5m), weathering close to surface and faulting. Open-pit mining is initially applied, but this typically progresses to underground mining as deeper levels of the deposit are reached.

Historically, there was sufficient high-grade metallurgical ore to meet demand but with the rapid growth of the stainless and other alloy steel industries, the much larger reserves of the lower grade, higher iron ores found in South Africa had to be exploited, allowing South Africa to evolve into the world's dominant supplier.

**GLOBAL RESERVES AND RESOURCES**

Reserves are defined as proven in-situ tonnages, while resources are estimated additional tonnages.

- Zimbabwe has reserves of about 140 million tonnes with resources of a further 1 billion tonnes. It is the only country to exploit both stratiform and podiform deposits. The stratiform deposits occur in the Great Dyke, approx. 550 km long and 11 km wide, while the podiform deposits occur in the Selukwe and Belingwe areas.

- Kazakhstan has podiform deposits in the southern Ural Mountain region with reserves of 320 million tonnes and a further 320 million tonnes resource. The ores vary greatly in chromium content and in Cr:Fe ratios.

- India's output is from podiform bodies on the east coast of the state of Orissa. Its reserves are estimated at 27 million tonnes with a further resource of 67 million tonnes.

- Finland has podiform deposits near Kemi in northern Finland. Although the Cr2O3 content is very low, the ore has been successfully mined, concentrated and smelted to ferrochromium, and then converted to stainless steel on site. Reserves are given as 41 million tonnes and resources as 120 million tonnes.

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- In Brazil, production is concentrated in Bahia and Minas Gerais, although chromite deposits have been identified in other states. These are mainly stratiform deposits with reserves of 14 million tonnes and resources of 17 million tonnes.

China's chromium resources are contained in podiform and stratiform deposits but are largely unknown in terms of possible reserves and resources. There is a chromite mine in Tibet. Russia also has mines in the Ural Mountains with further developments above the Arctic Circle.

Other countries with smaller chromite deposits include Oman, Iran, Turkey and Albania. Total reserves and resources of these and others are 24 million tonnes and 538 million tonnes respectively.

**WORLD PRODUCTION AND GLOBAL DEVELOPMENT**

South Africa holds about 72% of the world's chrome reserves and produces around 37% of annual world production. While demand for chromium alloys has been expanding by some 4.5 - 5% annually over the past 30 years, the output of chromite ore followed closely with an average growth rate of 4.6% per annum.

However, the market performance has shown an unusual pattern:

- Between 1994 and 1999, chrome ore production stagnated whereas from the year 2000 onwards, market volumes increased from 15 million tonnes in 2003 to 24 million tonnes in 2012. This substantial increase can be primarily explained by the rapidly rising global stainless steel demand and production in China, where local ferroalloy plants converted strongly rising imports of chrome ore into chromium alloys.

- In the year 2012, world chromite ore production stood at nearly 24 million tonnes with the following breakdown: South Africa accounted for 37% of production, whilst Kazakhstan and India provided 15% and 16% respectively. Brazil, Finland, Oman, Russia, and Turkey together contributed a further 21%, whilst some 12 smaller producer countries brought the balance of 9%. Within the total volume of ore and concentrates produced in 2012, 95% were metallurgical grade, 2% chemical grade and the balance of 3% were refractory and foundry grade.

**USES AND APPLICATIONS**

Chromite or chromium ore is the critical ingredient in stainless steel and there is no known substitute. The lowest grade stainless steels contain 11.5% chromium, rising to 25% or more in high-grade stainless steels. It is an extremely versatile element and finds a wide variety of uses in applications in the chemical and refractory industries.

Of the world's total production of chromite, approximately 95% is smelted into ferrochromium alloys for subsequent use in the stainless steel, steel and other alloy industries. Chromium metal, composed of nearly 100% chromium, is produced by the aluminothermic or electrolytic process. It is mainly used for specialty alloys.

2% of the world's production of chromite was used for chromium chemicals in 2012. The primary product from the chromite is sodium chromate. From this, a variety of other chemical products are made and used, for example, tanning of leather, as coloured pigments in paints, plastics and ceramics, and metal finishing such as chromium plating.

According to Xstrata Alloys, the leading producer of ferrochrome, 2.5t of South African chrome ore is consumed in order to produce 1t of ferrochrome, while 1t of ferrochrome is needed to produce 4t of stainless steel.

Demand for chrome, like nickel, is driven by downstream stainless steel growth. However, unlike nickel, there is no substitute for chrome in the stainless steel industry. The end markets for steels containing chrome are metal goods (electronics, automotive etc.), construction, engineering, transportation and electrical goods.

As highlighted above, ferrochrome producers consume most chromite ore mined and the balance is consumed for special uses such as superalloys, special steels and plating. High iron chromite is used for the production of low quality ferrochrome, foundry sands, chromium salts (used in the leather tanning industry as a pigment and in chromium plating) and refractory purposes (production of magnesite-chromite and chromite-magnesite bricks).

***Chrome is the critical ingredient in stainless steel and there is no known substitute***

**FERROALLOYS**

A wide range of ferroalloys are produced, reflecting not only the appropriate metallurgical application but also the composition of the ore in terms of its Cr2O3 content and it's Cr:Fe ratio. The main alloys are high-carbon ferrochromium (HCFeCr), produced from ores with Cr:Fe ratios of 2.0-3.6, and having a chromium content of more than 60% and carbon of 4-6%. Alternatively "Charge Chrome" produced from lower grade ores, mainly from South Africa, with Cr:Fe in the range 1.3-2.0, and containing 50-55% Cr and 6-8%C. These two alloys are sometimes collectively referred to as high-carbon ferrochromium.

Some 8.8 million tonnes of HCFeCr were produced in 2012. China accounted for 35% of production followed by South Africa: 32%, Kazakhstan: 11% and India: 11%. Brazil, Finland, & Russia together contributed a further 7% whilst some 5 smaller producer countries brought the balance of 3%.

Maximum levels of the impurities sulphur, phosphorous and titanium are specified in the alloys and minimum or maximum levels of silicon, depending upon the steelmaking process, which might require the exothermic oxidation of the silicon to provide additional energy.

Smaller quantities of chromium are added to the steels in the form of medium-carbon ferrochromium (MCFeCr) and low-carbon ferrochromium (LCFeCr) in stages or processes, which require lower carbon levels. MCFeCr contains less than 5%C and LCFeCr has less than 0.1%C and less than 1% Si. LCFeCr is generally used by steelmakers for their final trimming adjustments to the steel composition.

There were approximately 800,000 tonnes of Other Ferrochromium (MCFeCr and LCFeCr) produced in 2012 with China, Russia, South Africa and Kazakhstan being the main producers.

It is chromium that confers upon stainless steel its remarkable corrosion resistance. Other elements such as nickel and, in the top grades of stainless steel, titanium and molybdenum can also be added to improve technical performance in specific environments.

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