



ANNOUNCEMENT TO THE AUSTRALIAN SECURITIES EXCHANGE: 29 APRIL 2016

## **MARCH 2016 QUARTERLY ACTIVITIES REPORT**

### **HIGHLIGHTS**

- **First review for iron plant DFS undertaken**
- **Near completion of the co-generation/power plant design by Poyry**
- **Logistics study, bathymetric survey and geo-electrics survey completed**
- **Integration of Sapex Oil Tools Limited**

Activities for the Indo Mines Limited ('Indo Mines') group during the March 2016 quarter included the following:

#### **First review for iron plant DFS undertaken**

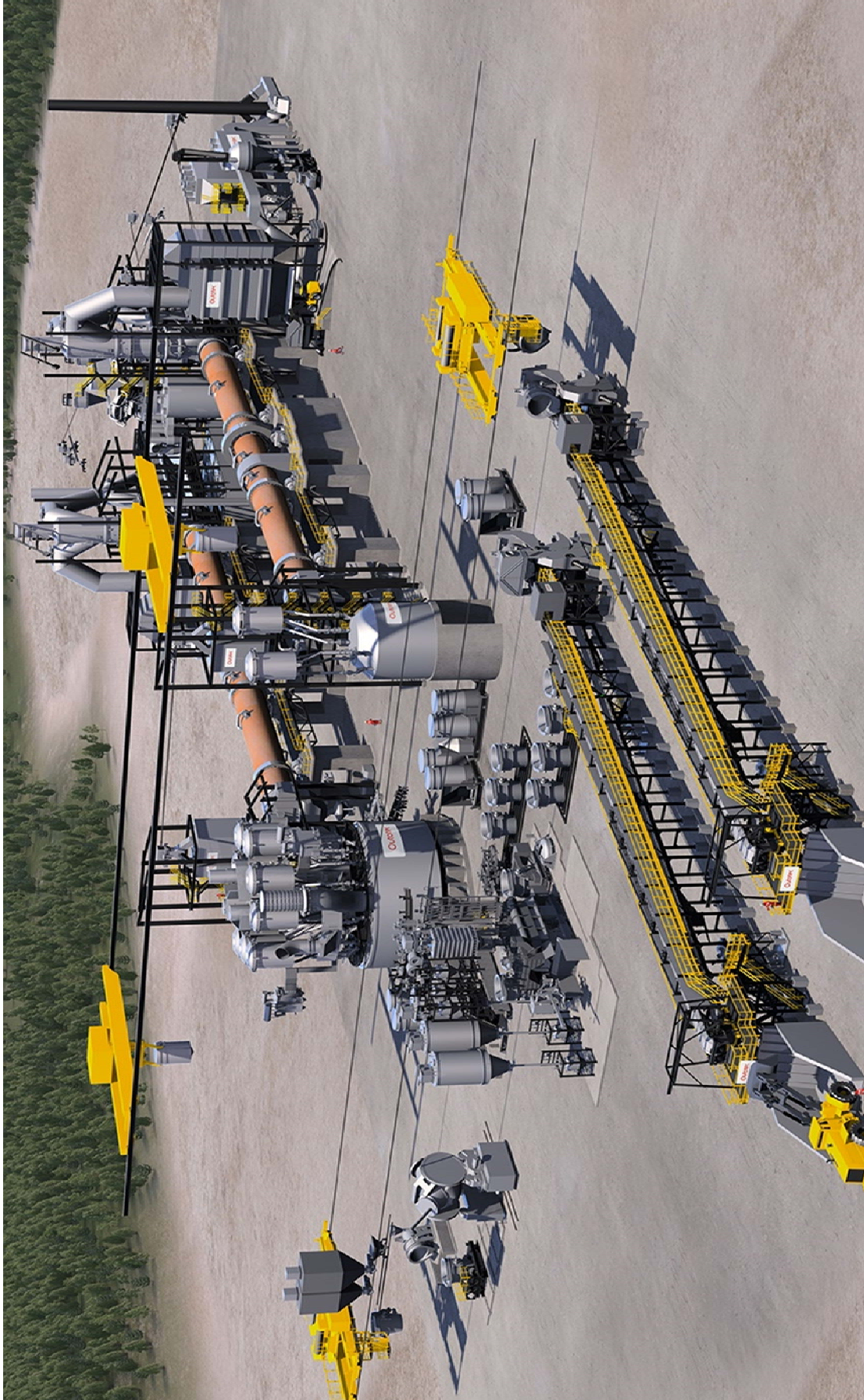
Work on the definitive feasibility study with Outotec for the iron making facility at Kulon Progo to produce pig iron and vanadium by product has continued with first review now being undertaken. This detailed study will provide basic engineering design that is of a 'bankable' standard with appropriate project capital and operating costs. The focus of this study is an improvement in both capital and operating expenditures of the pig iron plant and an improvement in vanadium recovery which is an essential revenue stream for the economic feasibility of the project.

Documents that have been submitted and reviewed by Indo Mines to date are as follows;

- Plant layout
- Single line diagram
- Block diagram
- Document and equipment codes procedures
- Process flow diagram
- Equipment list including major equipment outlines

Subsequent to the March quarter the project team is evaluating the preliminary project capital and operating cost structure and scope modifications for the completion of the DFS.

Technical challenges faced throughout the design process include; correction material introduction to hot metal (if mill-scrap is utilised there is a drop in recoverable vanadium), the need for anthracite in the process, milling of coal, raw material handling – in particular the fine particle size of the concentrate and acquiring credible technical data associated with the Kulon Progo region such as seismic activity.



*Figure 1: Outotec SL/RN kiln and circular furnace configuration*



## Near completion of the co-generation/power plant design by Poyry

The pig iron facility requires a captive power plant of about 100MW net capacity. The aim of the Poyry Energy Ltd ('Poyry') study is to define the conceptual design of the power plant together with its cost estimation to complement the already existing studies performed for the pig iron process plant.

Following analysis of the plants' basic requirements, several options for the power plant configuration were prepared and evaluated. For the purposes of comparison of the options' different capital cost and variable operating costs, levelised cost of electricity was calculated for each option and the best option was identified also considering the requirements for high availability of the captive power plant. The solution with two separate trains (2 x 50 MWe), utilising two CFB boilers and two condensing steam turbines was chosen.

Fuel quality information for the Triaryani coal source has been reviewed and the performance coal composition has been defined, as well as the best and the worst coal for sizing different power plant systems. The technical specifications for main equipment was prepared based on the chosen concept and a request for budgetary offer was sent out to agreed potential suppliers. Auxiliary power plant systems are described and the solution for key auxiliary systems such as common coal handling system or sea water intake is elaborated upon. Cost estimation has been performed based on Poyry's own experience. In the next phase, the report will be updated and verified based on the information collected from potential technology suppliers for main equipment.

Cost estimation has been performed considering a "turn-key EPC" approach and total EPC cost of US\$193.3M was estimated. The operation and maintenance ('O&M') costs were estimated to be approximately US\$26.8M per year. Considering this O&M costs and the produced electricity the cost of electricity production was calculated to be US\$33.6/MWh (without including the investment cost and any time related cost escalations). The levelised cost of electricity was calculated according the VGB guidelines and with the assumed discount rate and escalation rates for fuel price it was calculated to be US\$70.34/MWh. Sensitivity analysis of this calculation has been performed.

Technically the plant was found to be feasible for construction.

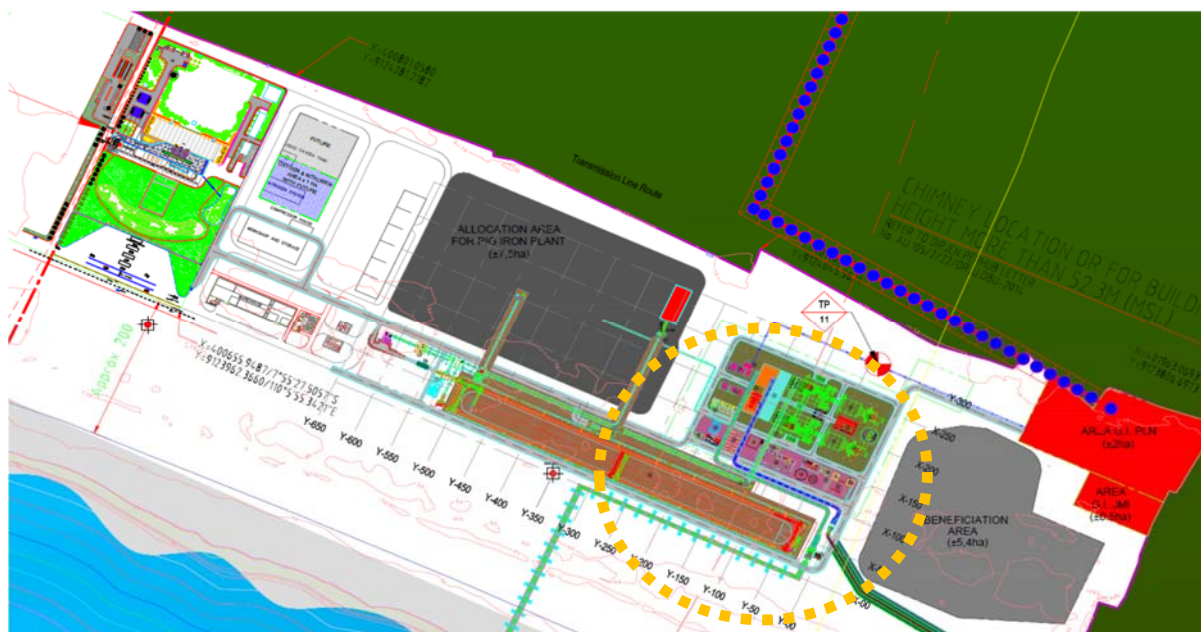


Figure 2: location area of power plant

## Logistics study, bathymetric survey and geo-electrics survey completed

In 2015, geo-electric studies were conducted in which a third party consultant measured 150 geo-electric points within a radius of 2, 5, and 10 kilometres from the Karang Wuni plant site to observe the presence of ground water.

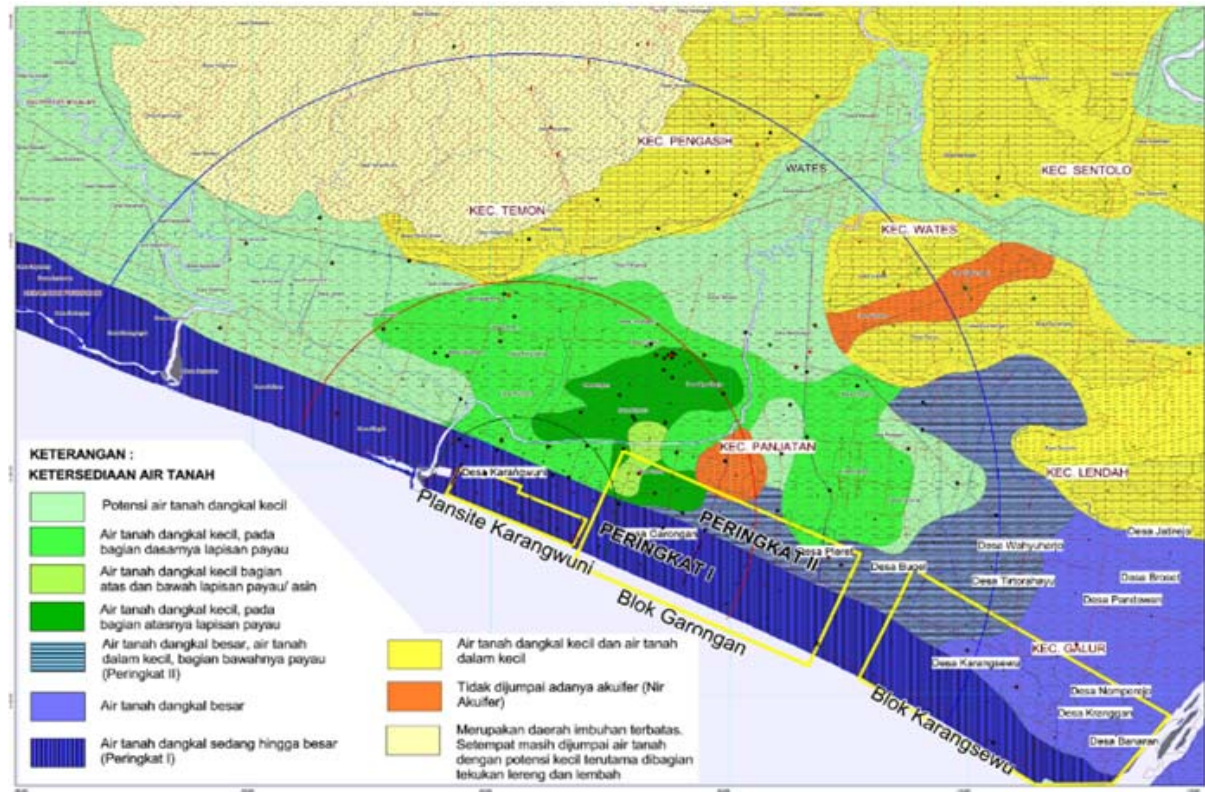


Figure 3: illustrates location of the potential plant site is surrounded in zones with potential water availability of recovery volumes between 2-10 litres per second

In order to assist Poyry in their design of the water in-take/out-take system for the power plant a bathymetric survey of the beach line along the contract of work area was completed. No significant issues were identified that would inhibit the installation of the in-take/out-take system.

Indo Mines appointed LAPI-ITB in 2015 to conduct a land logistic study to compare Opex/Capex when using road vs rail services. Since there is no sea port within a radius of 100 kilometres from the project site, the study examined the sea ports in Java Island that are connected to train tracks and major roads.





Based on existing data and analysis, LAPI-ITB recommended to utilise Tanjung Intan Port (Cilacap) to ship coal from the Triaryani mine source in Sumatera because of;

- Proximity to project site (140 kilometres)
- Berth operating ratio (BOR) is relatively low i.e. < 50% in 2014 and 2015
- The port provides sufficient throughput to fulfil phase 2 coal demand with a dedicated berth
- Available rail infrastructure within the port.
- Available berth for 40,000 DWT vessel and 10,000 DWT barge
- Solid supporting facilities (berths parallel to railway, hoppers, crane grab, excavator, storage - both open and closed).

### **Integration of Sapex Oil Tools Limited**

Since the acquisition of a 51% holding in Sapex Oil Tools Limited ('Sapex') in January 2016, management has focused on expanding the businesses' regional foothold, in particular within the Philippines and Myanmar.

Sapex management's other core focus has been strengthening the businesses' supplementary services, in particular the logistics and engineering & construction ('E&C') divisions. This strategy will continue to provide steady deal-flow. To assist in marketing a new website has been created; [www.sapexservices.com](http://www.sapexservices.com)

Sapex's primary business; the marketing, operation and management of Dura-base mats, has seen a slow-down of activity due to the negative Oil & Gas environment - which has historically been Sapex's key market. However, this slow-down in activity has been mitigated by management's aggressive push in to other sectors, in particular military, mining, plantations, power and electricity transmission.



*Figure 4: Sapex location services  
Durabase Mat service in Duri, Sumatera*

Enquiries: Arran Marshall, Chief Executive Officer  
Telephone: +62 8777-0000-456

### **Additional ASX Listing Rule Information**

Indo Mines Limited provides the following additional information in accordance with ASX Listing Rule 5.3.3.

#### Mining tenements held at the end of the quarter and their location

Project Name	Location	Area	Status	Interest Held
Kulon Progo iron sands project	Kabupaten Kulon Progo, Yogyakarta Region, Java, Indonesia	2,978 Ha	Granted in November 2008 under contract of work	70%

#### Mining tenements acquired during the quarter and their location

Not applicable.

#### Mining tenements disposed of during the quarter and their location

Not applicable.

#### Beneficial percentage interests held in farm-in or farm-out agreements at the end of quarter

Not applicable.

#### Beneficial percentage interests held in farm-in or farm-out agreements acquired or disposed of during the quarter

Not applicable.