

<i>Environmental Impact Assessment for Proposed Expansion of Aluminium Smelting Plant on Lot 36, Samalaju Industrial Park, Bintulu, Sarawak for Press Metal Bintulu Sdn. Bhd.</i>	Project No:	<i>P17004</i>
	Revision:	<i>0</i>
	Date:	<i>June 2019</i>

## **CHAPTER 10      STUDY FINDINGS**

This chapter presents the conclusion of the environmental impact assessment carried out for the Proposed Expansion of Aluminium Smelting Plant on Lot 36, Samalaju Industrial Park, Bintulu, Sarawak for Press Metal Bintulu Sdn. Bhd. The expansion entails development of Plant 3, addition to existing smelter Plant 1 and Plant 2, each with production capacity of 320,000 MT/year. Thus, in total, overall production capacity will amount to 960,000 MT/year.

Environmental impact assessment was conducted for cumulative potential impacts arising from operation of Plant 1, Plant 2 and proposed Plant 3 by evaluating impacts liberated from construction stage and operational stage. The findings of the EIA study concluded that environmental impacts arising from the construction and operation of the Project are within the acceptable limit and not likely to have significant long-term residual impacts to the surrounding environment, provided that all required environmental management measures are implemented and maintained

Below summary of findings from the assessment undertaken:

### **Air Quality**

Air quality assessment for the operational was undertaken to determine the impact from FTS stacks and bag filter stacks emission released, of which these air pollution control systems are designed for compliance with the Environmental Quality (Clean Air) Regulations 2014. Modelling scenarios has taken into account the normal operation from current operation Plant 1 and Plant 2, and with the operation of the Project. Also, the modelling has considered abnormal scenario where failure of pollution control system leading to release of untreated emission.

Input into the modelling are based on the existing operational data and for the Project operation, it is assumed similar emission quality is anticipated. Based on this input, the prediction modelling results showed that air emission quality from the plant is found within the compliance limits stipulated by the Environmental Quality (Clean Air) Regulations, 2014 and projected Ground Level Concentration (GLC) for PM<sub>10</sub>, SO<sub>2</sub> and HF are found in compliance with values under the Malaysian Ambient Air Quality Standard, 2013 (MAAQS, 2013).

One of the major pollutants from the emission is the SO<sub>2</sub> that is generated from the process due to release of sulphur as the pre-baked anode being consumed in the electrolysis process. The SO<sub>2</sub> is regarded as an indirect secondary pollutant which is generated due to its presence in the pre-baked anode. Current review of the process and pollution control system, it is found that the SO<sub>2</sub> is not easily removed by the flue gas treatment system (FTS). Similar situation is found at almost all conventional primary aluminium smelters.

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While the current operations at Plant 1 and Plant 2 is still able meet with the emission levels, it is assumed that similar practices by utilising pre-baked anode with low sulphur content will be adopted by the Project as well. This will be by limiting the sulphur level in the anode to not more than 2.5%. Nonetheless, there is an arising concern on availability of such quality pre-baked anode in future and to source for such materials may impose large expenses to Press Metal. As such, there is an urgent need to review further on appropriate technology for sulphur controls and also to review on the appropriate emission limits for compliance. At present, only Malaysia is imposing limits for SO<sub>2</sub> emission from aluminium smelters whereas this is not the practice in many other countries.

### **Environmental Health**

During normal project operation, the predicted ambient PM<sub>10</sub> and SO<sub>2</sub> concentrations at all the receptor locations will be below their respective MAAQS 2013 (Standard 2020), while the predicted ambient TF concentrations at all the receptor locations will meet its Air Quality Guidelines for Europe. However, the predicted ambient HF concentrations at all the receptor locations will exceed its Ontario's Ambient Air Quality Criteria (OAAQC) 2012. This high predicted ambient HF concentration is mainly due to the already high baseline HF concentration, rather than the incremental concentration from the proposed project.

During abnormal project operation, the predicted ambient PM<sub>10</sub> concentrations at the receptor locations will be below their MAAQS 2013 (Standard 2020), except at the project site, while the predicted ambient SO<sub>2</sub> concentrations at the project site, Samalaju Lodge and Samalaju Local Camp, and Samalaju Resort Hotel will exceed the 1-hour USEPA AEGL-2 for disabling health effect. Therefore, to prevent any untoward health outcome, the emergency shutdown system of the plant must be activated within an hour of the emergency situation.

Other environmental concerns relating to risk assessment and noise are also addressed in this EIA, with findings indicated that the impacts in these areas are insignificant.

### **Noise Concerns**

Noise liberated during the operational phased are related to plant machineries and equipment. This is non-significant to the nearest receptors as most of the noisy areas with located within the enclosed buildings. Of concern would be the impact of exposure to high noise levels towards the on-site works which may lead to occupational hazard due to long-term exposure.

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## **Waste Management**

Management of process residues and other hazardous materials arising from the construction activities and operation is assessed in relation to the types of wastes that are likely to be generated, stored, and to be disposed.

Existing operation has established procedures for solid waste and scheduled wastes management, thus management of waste generated from proposed Plant 3 must continue to follow current practice and to improve as needed. Solid waste generated will be send to BDA approved landfill in Tanjung Kidurong while the scheduled wastes will be managed according to requirements stipulated in the Environmental Quality (Scheduled Wastes) Regulations, 2005.

## **Water Quality**

Since aluminium smelting process does not generate any effluent, water quality concern during operational stage of Project is limited to discharge of cooling water during intermittent bleeding and surface runoff. Any discharge shall comply with Standard B limits stipulated in Environmental Quality (Industrial Effluent) Regulations, 2009.

### **10.1 CONCLUSION**

This EIA has been conducted based the available information and addressed the requirement of the TOR approved in May 2019.

In conclusion, with the proposed design and commitment from the Project Proponent to safe guard the environmental concerns, together with the mitigation proposed and in place (considering the track record of existing operation), the findings of the EIA study support the development and operation of the Project provided the proposed mitigation measures identified in this EIA are implemented for the Project.

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