

EXECUTIVE SUMMARY

1 Executive Summary

1.1 Introduction

An Environmental Impact Assessment (EIA) was carried out by a highly experienced interdisciplinary team of professionals on the proposed brownsite efficiency upgrade of the Government of Jamaica-Alcoa owned Jamalco bauxite-alumina production facilities from its current 1.25 million metric tonnes/year production to 2.80 million metric tonnes/year (mtt).

Alcoa has been operating in Jamaica since 1963, firstly as a bauxite mining, drying and shipping operation and later as an alumina producer, following construction and commissioning of a refinery at Halse Hall, Clarendon in 1970. The start-up capacity of the refinery was 500,000 mtt. The plant was built for expansion. Through a series of incremental expansions, the facility has improved production capacity to the current capacity of 1,250,000 mtt. The Company has established an environmental, social and economic baseline of over forty years of operations in Jamaica.

Bauxite for supply to the upgraded plant will be mined from Clarendon, South and North Manchester. The last named being a new area for mining.

Cutting edge, state-of-the-art, technologies developed over the last thirty four years of alumina production will be used in the efficiency upgrade. This will enable the facility to achieve this level of production without doubling of its physical size. Since the plant was built for expansion, essentially, the upgrade will take place within the existing battery limits of the refinery.

A new Residue Disposal Area (RDA # 5) will be constructed for bauxite residue management. The technology for bauxite residue management will be changed to the more efficient, solar drying, thickened residue disposal technology, commonly known as

“dry stacking”. This stores more bauxite residue per unit area, hence conserving on land space. A special thickener required for this purpose is already in place.

Relatively minor modifications will take place at the port involving: reinforcement of the dolphins, elevation of the shiploader, maintenance dredging to increase depth by 4.5 to 5.5 ft. A parallel railway line will be constructed at the port to allow for staging of more rail cars during off-loading. A temporary, private, parallel access path along the alignment of the railroad, from the port to the refinery to facilitate the transportation of heavy equipment from the port to the plant during construction is being considered. This would alleviate potential impacts on the public roadways.

Upgrading of the facilities represents an investment of US\$ 690,000,000.00; the largest single investment in Jamaica’s history. Of this US\$ 300,000,000.00 will be spent in Jamaica for purchasing goods and services which will register to the National Accounts.

On completion of construction and start-up of operations, an additional

US\$ 77,000,000.00, in new income, will be earned annually by Jamaica.

During the twenty four month construction period approximately 2,500 persons will be employed. About one hundred permanent jobs will be created during operations.

In collaboration with HEART/NTA, Jamalco has already started a major human resource development programme, in an effort to improve the skills base of the area and possibly supply skilled tradesmen for the upgrade project.

Jamalco has had to compete intensively with other bauxite rich locations, worldwide within the Alcoa system, to qualify for consideration for upgrading of this plant. This involved significantly improved efficiencies and effectiveness in corporate management, business management and environmental, health and safety management.

Various alternatives were identified and analyzed in conducting the studies. After rationalization and optimization the most suitable alternative was justified and selected.

Consequent on its 40 year baseline of operations in Jamaica there will be no new or unfamiliar environmental impacts or risks. Furthermore the Company has, as a matter of policy and its internal values, consistently improved its technologies and methodologies for environmental, health and safety management.

1.2 Terms of Reference

The EIA was done against Terms of Reference (TOR) approved by the National Environment and Planning Agency (NEPA) (see Section 14).

1.3 Regulatory Framework

The regulatory framework for the project included international and national policies, legislation, regulations and standards as well as Alcoa International policies and values. The project was designed and the EIA conducted to insure project compliance with the regulatory framework.

1.4 Environmental Setting & Baseline

The environmental setting and baseline for the proposed efficiency upgrade included studies, analyses and assessments on: geomorphology, geology, water resources, terrestrial and marine ecology, land use and aesthetics, socio-economics, community consultations, archaeological and historical heritage resources, air quality and weather, noise and vibration, natural hazard vulnerability and risk assessment, among others.

The EIA also addressed the following issues:

- Solid and hazardous waste management practice/landfill.
- Wastewater management

- Occupational health and safety
- Human health risk of proposed actions
- Analysis of Alternatives
- Impact identification
- Impact mitigation
- Strategic elements in relation to other developments planned for the region

Closure plans for construction phase and structural integrity testing.

1.5 Regional Location

The parishes of Clarendon and Manchester comprise the general regions of the project, while the project specific sites are provided below.

1.6 Site Specific Locations

The specific sites for the proposed project are as follows:

- Mining: - Clarendon, South & North Manchester
- Alumina Refinery & Residue Disposal Area: - Halse Hall, Clarendon
- Alumina Port: - Rocky Point
- Transportation Corridors:- Mines to Alumina Refinery and Alumina Refinery to Rocky Point Port.

In addition, other developments planned for the area of the study were noted and their strategic importance taken into account along with those of the proposed efficiency upgrade.

1.7 Approach & Methodology

Various creative, innovative and standard methodologies and approaches were used involving literature and qualitative and quantitative field studies for each aspect of the EIA.

1.8 Project description

The proposed project will be constructed over a period of 24 months and will involve changes in: mining location, the refinery, bauxite residue disposal technology, the port and transportation corridors.

1.9 Potential impacts identified

The potential impacts identified were both negative and beneficial. No new or unfamiliar major negative impacts or risks were identified. Those negative impacts identified could all be mitigated using traditional and new technologies.

The potential environmental impacts identified for the pre-construction, construction and operating phases of the proposed project included:

1.9.1 Negative

- fugitive airborne, particulate emissions at the mines, plant, port and transportation corridors.
- gaseous atmospheric emissions from fuel combustion for co-generation of steam and electrical energy at the refinery as well as alumina hydrate calcination. Fuel combustion in mobile and stationery equipment.
- loss of biodiversity, at the port and mines
- change in drainage regime at the mines

- contamination of ground water resources
- improper collection and handling and disposal of wastes
- improper wastewater management
- noise and vibration during construction and operations
- aesthetics and transient change land use
- archaeological and historical heritage resource impacts

1.9.2 Positive

- improved macro and micro economic performance nationally, through investment, increased revenue and job creation.

1.10 Impact Mitigation

The proposed efficiency upgrade, being a brown site project with an operating and environmental baseline of forty years, there are no new or unfamiliar negative impacts or risks. All the impacts will be effectively mitigated using traditional and state of the art methods.

1.11 Impact Maximization

The potential beneficial impacts are particularly significant to Jamaica's economic stability, growth and development. There are various potential opportunities for maximization of these benefits.

1.12 Conclusion

The proposed brownsite efficiency upgrade of Jamalco's bauxite mining and alumina refining operations in Jamaica is planned to take place against a background of a forty year baseline of operations and in a highly competitive global bauxite alumina industry, both within the Alcoa international system and externally in the world's aluminium industry in general.

Jamalco has had to significantly improve its efficiencies to make Jamaica an attractive location to qualify for consideration as a candidate site for this efficiency upgrade.

Over the forty year period which the company has operated in Jamaica there has been marked improvement in alumina production and environmental technology and management.

The potential impacts identified will be mitigated using proven technologies, most of which have been effectively applied in the past. No new or unfamiliar environmental impacts or risks have been identified with the proposed efficiency upgrade.

The proposed project which represents the largest single investment in Jamaica's history bears the potential for enormous macro and micro economic as well as social benefits to Jamaica.

1.12.1 Recommendations

Jamalco and the Government of Jamaica should make every effort to maximize the potential benefits which could come to Jamaica as a result of this project.

Because the potential impacts of the project can be mitigated and the beneficial impacts are substantial, we recommend that this project be permitted for implementation.