Albemarle and Western Australia

We believe further expansion in Western Australia, specifically the Kemerton Strategic Industrial Area, may be a key to our future growth and meeting the growing Lithium demands of our customers.

* aerial photo courtesy of LandCorp
Introduction to the Project

Albemarle is proposing to construct a lithium processing Plant within a site area of around 90ha within the Kemerton Strategic Industrial Area (KSIA) located approximately 17km north east of Bunbury. The Plant will process spodumene ore (containing 6% lithium oxide), transported from the Talison Mine at Greenbushes, to produce lithium hydroxide product and a sodium sulfate by-product. Construction of the plant is scheduled to commence in late 2018 with the aim of first production of 20,000 tonnes per annum (tpa) in 2020 ramping up to 100,000 tpa in 2025, with a further 25 years project life at full production. Process tailings will be generated and transported to a dedicate storage cell in a licensed landfill.

What is the process?

The Plant will process up to 1 Million tpa of Spodumene ore (containing 6% lithium oxide) using a Pyrometallurgical, Hydrometallurgical refining process to produce the lithium hydroxide product and sodium sulfate by-product. Spodumene is a translucent, grayish-white aluminosilicate mineral. Spodumene concentrates are also directly used in the glass and ceramics industry and for metallurgical applications.

What materials are required for the process?

The main chemicals and reagents used to process the spodumene ore include caustic 50% solution, sulfuric acid, limestone sand and quick lime.

How will the materials be transported and where to and from?

All materials will be transported by truck the specifications of each will depend upon the type of material being transported. Spodumene ore, packaged products and tailings will be transported using B- double trucks. The reagents will be transported by the approved and licensed transport vehicles. Spodumene will be transported from Greenbushes to Kemerton. The final products will be transported to Fremantle Port for export shipment. Chemicals and reagents will be sourced from various local suppliers and distributors. Tailings will be trucked to a licenced land fill site.

Expected Economic Benefits

- Greater than $1B being invested of which more than 65% is being spent in Australia
- More than 80% of its ongoing spend is expected to be in Australia
- Value adding to mining product export by downstream processing
- Creating an economic multiplier for the Region, State and Country
- 300- 500 jobs during Construction
- 500+ jobs at full scale Operation
- Creating indirect opportunities for Australia and WA
- Payment of a significant amount of taxes in the form of Royalties, GST, Income, Land (Property), and Payroll

Spodumene Refining Process Flow Diagram
What waste is generated, what will happen to the waste?
Processing of the spodumene ore will result in the generation of process tailings comprising aluminosilicate, gypsum, residual salts and approximately 30% water. The tailings will be transported by trucks to a licensed landfill for storage. Research is underway to investigate the potential beneficial use of the tailings in the construction and building industry.

What other infrastructure is required to support the plant?
Ancillary infrastructure will be constructed at the site to support the operation of the Plant. Existing nearby services of electricity supply, water supply, natural gas supply and telecommunications will be connected to the plant site.

What environmental impact and management studies have been done?
Albemarle will ensure that all of the regulatory requirements are met including undertaking rigorous environmental approval processes. Numerous environmental studies have previously been conducted in the Kemerton Strategic Industrial Area (KSIA) and environmental impact assessment studies have recently been conducted by Albemarle specifically on the Kemerton Plant Project. The studies include flora and fauna assessments, surface and groundwater impact and management, air quality impact assessment, and noise and vibration assessments. A comprehensive environmental impact assessment document was collated and submitted to the Western Australian Environmental Protection Authority (EPA) as a Supporting Document to the Referral of the Project under the Environmental Protection (EP) Act 1986. A specific assessment on the areas and species of conservation significance was conducted. The details and outcome of the assessment were submitted to the Commonwealth Department of Environment and Energy (DoEE) under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999. Additional information requested by the EPA and the DoEE was provided to the Authorities, which completed the environmental impact assessment and management material for the proposal. The project is currently being assessed by the EPA and DoEE.

How can we find out about what is proposed at the Kemerton site and have input into the project?
Albemarle consults openly and transparently with stakeholders on the proposed Kemerton Plant. The consultation programme includes:

- Briefings to Australian, State and Local Government;
- Presentations to business and interest groups;
- Public information displays; and
- Community Input Forums held in the local area.

Consultation with the Government Ministers and Departments commenced early in the Project scoping phase and is continuing. Briefings have been conducted to the Shire of Harvey, City of Bunbury and local business groups with project updates presented on a regular basis. Environmental and Interest Groups have been consulted on the project with the intent of identifying how Albemarle and these groups could potentially work together on suitable relevant community projects.

Albemarle is interested in obtaining community input into the project and will provide public information display booths at local shopping centres, which will be manned by Albemarle representatives from whom you can obtain information, and relay your comments and questions on the Project. Community input forums are also planned were there will be further opportunity to obtain information and direct your comments and questions to Albemarle. Details of the location and time of the public displays and forums will be advertised locally. Comments and queries on the Project can be directed to the Albemarle representatives noted as contacts in this Project brochure.
Why lithium and what is it used for?

Why lithium? It’s attractive for a number of reasons that are difficult to match with competing battery materials. For example, lithium-ion batteries enable higher energy density (storage capacity) and specific power (for power bursts) than competing technologies, making it the battery technology of choice to power our future. These batteries offer a sustainable and affordable energy storage technology that:

- Reduces greenhouse gases and harmful air pollution
- Enables life-saving portable medical devices
- Promotes e-mobility
- Diversifies the world’s energy position

Lithium compounds are also critical components in a wide range of other consumer products, including the high strength glass used in mobile devices; synthetic rubber found in tires and running shoe soles; ceramics used in stovetops and cookware; lubricants for industrial applications; and pharmaceuticals.

Albemarle at a Glance

Albemarle is the industry leader in lithium. Our extensive global footprint, superior resource position and production capacity are key to meeting our customers’ evolving needs in this fast-growing industry. We currently operate world-class lithium resources in Antofagasta, Chile (Atacama Desert); Chengdu and Xinyu, China; Silver Peak, Nevada; and Greenbushes, Australia, through our Talison joint venture. Albemarle also holds rights to additional lithium resources currently not in operation at Kings Mountain, North Carolina, (the second-best hard rock resource in the world) and Magnolia, Arkansas; and we are evaluating a potential brine resource in Antofalla, Argentina.

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