

1 August 2017

**Alba Mineral Resources plc**  
("Alba" or the "Company")

**Alba Awarded Exclusive Exploration Licence  
in Thule Black Sand Province, Greenland**

Alba Mineral Resources plc (AIM: ALBA) is pleased to announce that it has been granted an exclusive mineral exploration licence over a significant proportion of the coastline in the Thule black sand province in north-west Greenland. The licence area is prospective for heavy mineral sands, especially ilmenite.

**HIGHLIGHTS**

- Alba has been granted an exclusive mineral exploration licence covering 384 km<sup>2</sup> of prospective coastline in the Thule province of north-west Greenland.
- Black heavy mineral sands have been recorded in the region for many decades. The sands are enriched with ilmenite and/or magnetite.
- The grade of the active beaches in the region is high – up to 60% - with a historic average of about 43% TiO<sub>2</sub>. Raised beaches have a larger tonnage potential but lower titanium values – up to 23% TiO<sub>2</sub> with an average around 12%.
- According to the Geological Survey of Denmark and Greenland ("GEUS"), "the beaches around the former settlement Moriusaq and along the adjacent south-east trending coastline are the most promising black sand occurrences from an economic point of view". The most economically promising heavy mineral sands occur on active and raised beaches of the Steensby Land ilmenite showing (see Figure 2 below).
- Alba has secured a 104 km stretch of this coast (including inlet areas) being approximately 70 per cent of the total length of this prospective coastline.
- Bluejay Mining Plc (AIM: JAY) ("Bluejay"), which owns 100% of the neighbouring Pittufik ilmenite project (just 9 km from Alba's licence area and on the same south-east trending coastline), has announced an Inferred Resource of 23.6Mt at 8.8% ilmenite (in situ), including a high-grade zone equal to 7.9Mt at 14.2% ilmenite (in situ) at Moriusaq which is the focus of feasibility and production studies.
- GEUS has recently estimated that 10 billion tonnes of ilmenite exist in the original rock within the entire region, with a further 7 billion tonnes of ilmenite present in the form of placer ilmenite. While non-JORC compliant, this highlights the potential of the province to host economic detrital ilmenite on Alba's licence.
- Alba has secured 100 per cent ownership of this project at no cost to shareholders other than modest due diligence review costs and the fee for licence grant.

- Alba is in the process of settling an exploration programme for this year with a view to confirming grade and extent of mineralization within the Alba licence area. Exploration will primarily involve surface sampling and trenching and use of ground penetrating radar, together with relatively inexpensive shallow augur drilling of the beach zones.



**Image 1: Booth Sund area, within Alba licence, looking out to sea. Active beaches shown in foreground, raised beaches on right-hand side**

**George Frangeskides, Alba’s Executive Chairman, commented:**

“We are delighted to have secured an extensive foothold within this significant emerging global ilmenite province. We are very grateful for the support shown by the Mineral Licence and Safety Authority and the Government of Greenland in awarding this licence to Alba, which we regard as an endorsement of the work we have carried out to date at our other principal exploration project, the high grade Amitsoq graphite project in southern Greenland.”

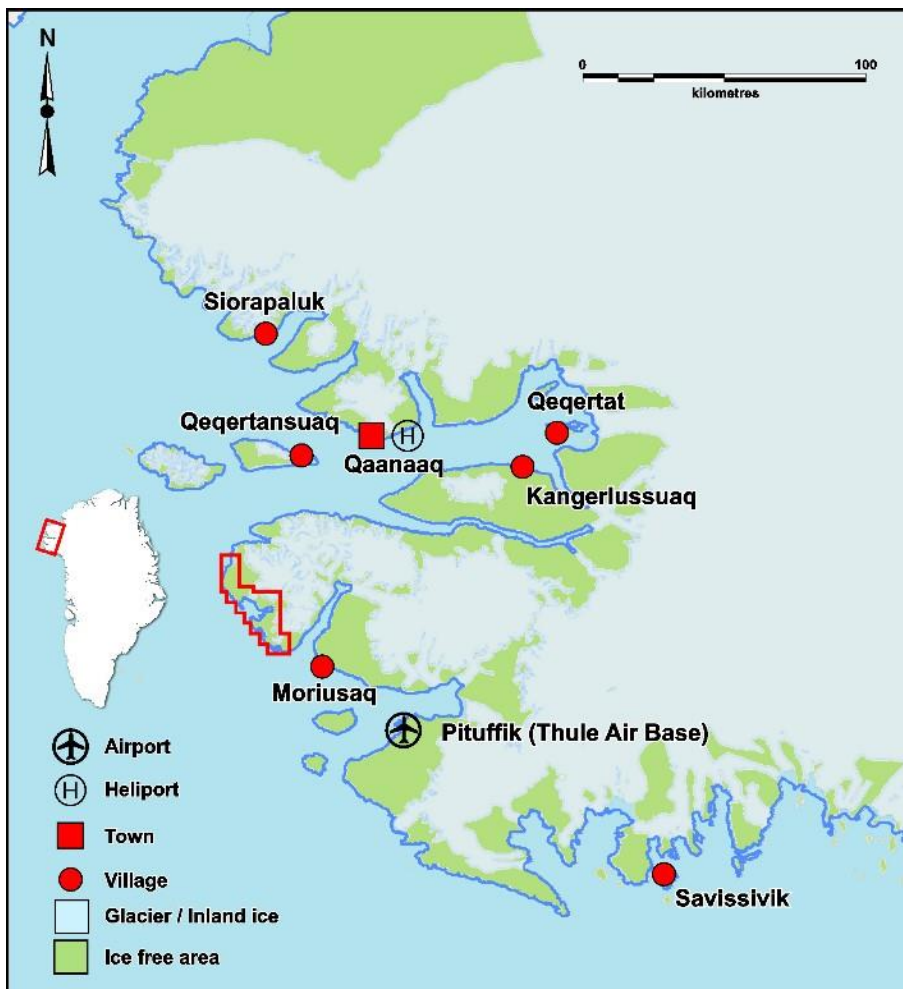
“Alba’s application for this licence area results from a thorough due diligence review of available exploration ground in Greenland which we carried out in conjunction with our technical team. Alba’s management is always on the search for significant new project opportunities as we strive to create value for shareholders, and we believe we have unearthed significant potential with this Project.”

“Ilmenite is the primary source of titanium dioxide, which is used as pigment in several industries including plastic, paints, coatings and paper, among others. Increasing demand for titanium dioxide is among the major factors driving demand for ilmenite.”

“We believe that securing this new, 100 per cent owned project at a negligible entry cost, is a potentially valuable addition to Alba’s project portfolio which now consists of significant assets in both the mineral and oil and gas sectors. We look forward to demonstrating that value to shareholders in the weeks and months ahead.”

**Project Location**

Alba’s new heavy mineral sands project (the “Black Sands Project” or “Project”) is situated on the Steensby Land peninsular in the north-west of Greenland, approximately 80 km south of the regional settlement of Qaanaaq (see Figure 1, below). The location is well placed for infrastructure, being close to a deep-water port and international airport at Thule Air Base operated by the United States Air Force to the south-east (see Image 2, below), as well as Qaanaaq domestic airport to the north. Both airports have regular flights from several airlines, including Air Greenland.



**Figure 1: Infrastructure Map (Alba licence area shown outlined in red), adapted from GEUS Report 2015/74**

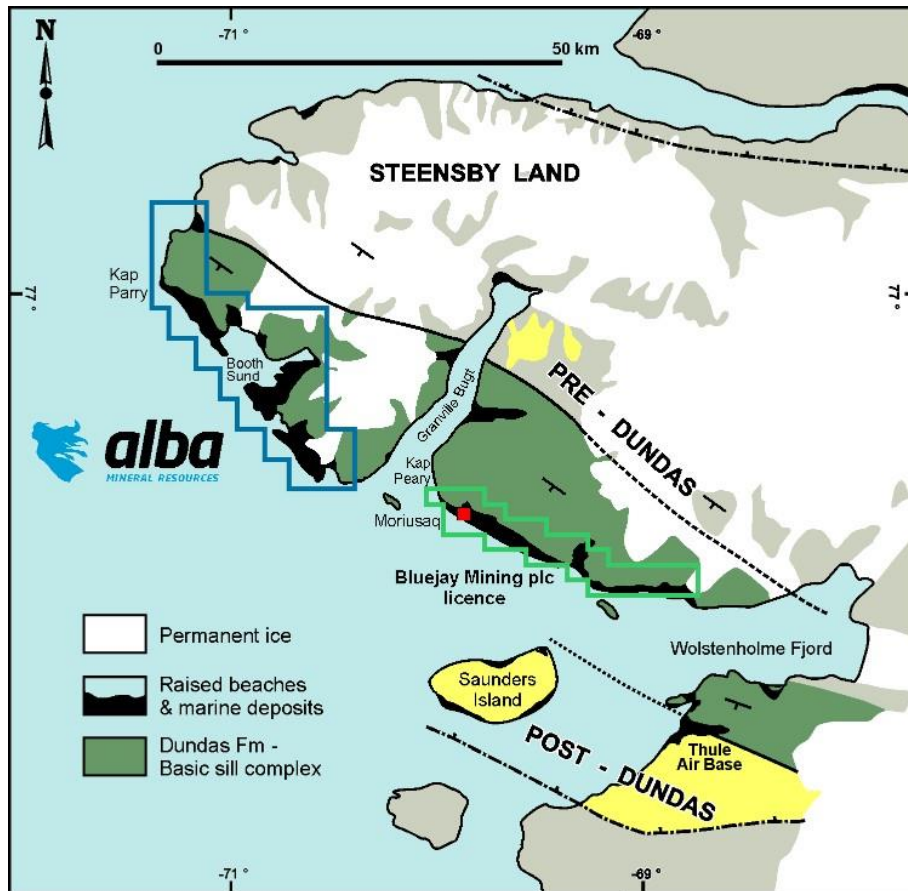
### **Thule Black Sand Province**

The Thule black sand province in north-west Greenland consists of several hundred kilometres of coastline containing ilmenite- and magnetite-rich sands. According to GEUS, elevated ilmenite concentrations - up to 60 wt% (weight percentage) ilmenite with an average of 37 wt% - are recorded on both active and raised beaches. The main source of the ilmenite sands, per GEUS, is a regional Neoproterozoic basaltic sill and dyke complex that intrudes the Mesoproterozoic basement. The sills have unusually high titanium content; up to 5.25 wt% in whole-rock analysis. Per GEUS, earlier commercial studies on the black sand deposits have concluded that a high titanium dioxide ("TiO<sub>2</sub>") content slag ilmenite concentrate could be produced because the level of other oxides is lower than most ilmenite smelted (*GEUS, Thule Black Sand Province and Regional Geology, 2015/61*).

Black heavy mineral sands have been recorded in the region for some decades. The sands are enriched in ilmenite and/or magnetite, derived from Neoproterozoic titanium-rich dolerite sills and dykes in the immediate hinterland of the beaches.

According to historic reports, the thickest stratigraphic section of the sills is in the Moriusaq half-graben where in southern Steensby Land the clastic strata hosts about 15 master sills that make up between 30 and 40% of the section; this is also referred to as the Steensby Land sill complex. See the location map for the Steensby Land sill complex in Figure 2 below, which also shows the extent of the historically mapped raised beach and marine deposits captured within the Alba licence area. The current mineralization sought by Alba

is placer in nature, and is present mainly in raised beaches (up to 40 m above sea level) and active beach environments.



**Figure 2: Location map of Steensby Land ilmenite, illustrating the extent and size of the Dundas Formation (Dawes 1989). Location of Alba’s Project licence outlined in blue, which covers significant areas of historically mapped raised and active heavy mineral sand beach areas, shaded in black. Adjacent licence area held by Bluejay Mining Plc outlined in green. The location of the Thule Air Base is also illustrated.**

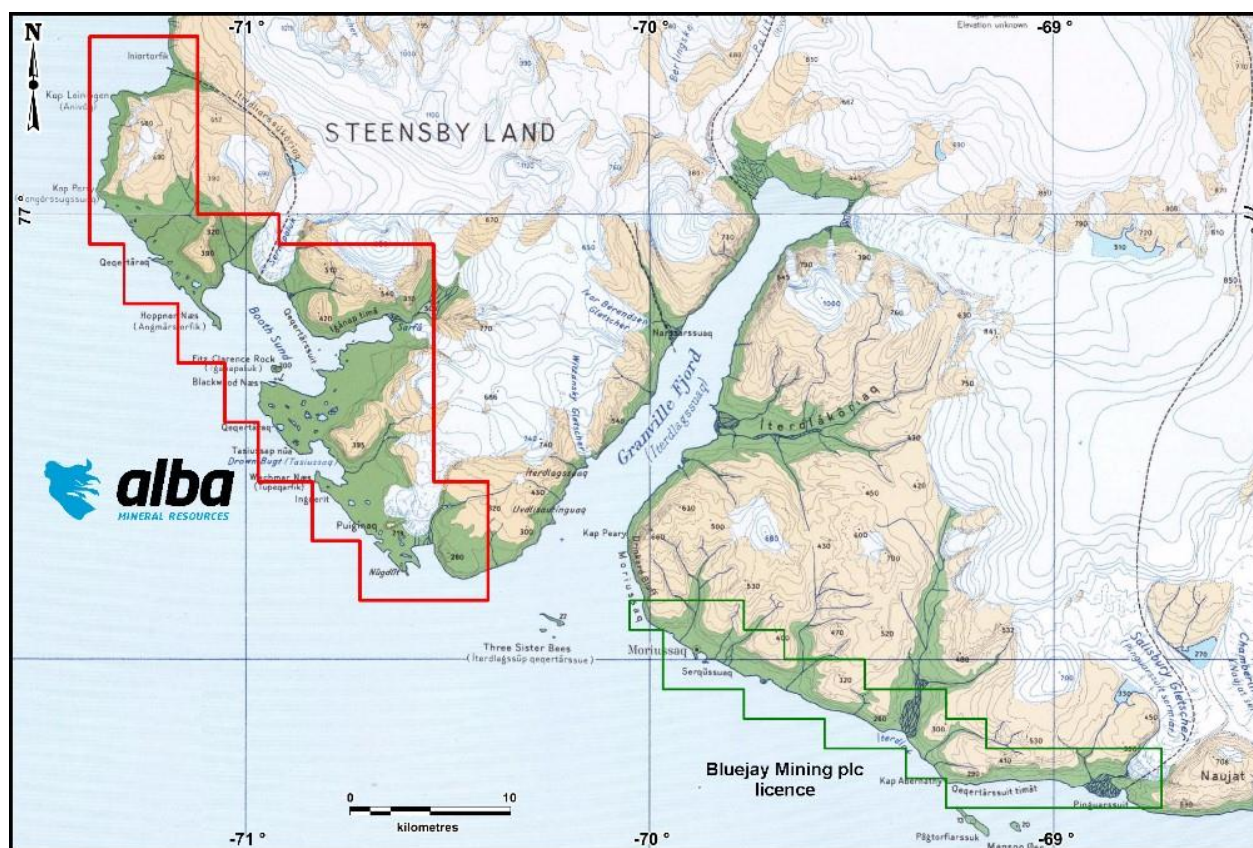
The deposits in the region are of two principal types:

- “Raised” and “Active” Beaches: these contain ilmenite accumulations of unknown depths. The “active” beaches are those areas seaward of the frontal dunes, including the beach, tidal zones and surf zones. The “raised” beaches mean those areas of frontal dunes set back from the beach. Alba’s Black Sands Project consists of approximately 104 km of total coastline, including both the outer coast and inlet areas (see Figure 3 below). The largest width of raised beaches within Steensby Land is up to 3 km, around Booth Sund. This is within Alba’s licence area.
- “Off-shore” beaches: this refers to the areas seaward of the active beaches, in the shallow marine environment in up to approximately 20 metres of water.

According to historic reports, the grade of the active beaches in the Steensby Land is high – up to 60% – with a historic average of about 43% TiO<sub>2</sub>. Raised beaches have a larger tonnage potential but lower titanium values – up to 23% TiO<sub>2</sub> with an average around 12%.



These historic sampling results were taken from areas outside of the Company's licence area, albeit on the same geological trend.



**Figure 3: Topographic map showing location of Alba's Project in red and location of Pittufik project in green.**

In a 2017 regional study by GEUS, covering the entire Thule black sand province, GEUS estimated that 10 billion tonnes of ilmenite exist in the original rock with a further 7 billion tonnes present in the form of placer ilmenite within the project region (covering an area of some 300 km x 150 km). This potential tonnage of ilmenite is non-JORC compliant, but does highlight the potential of the province to host economic detrital ilmenite on Alba's licence. As shown in Figure 2 above (areas shaded in black), Alba has secured the great majority of the most prospective areas of known raised and active beach deposits identified in historic reports and which were not already under licence to Bluejay Mining plc.

Note: a "placer" deposit means an accumulation of minerals formed by gravity separation during sedimentary processes, in this case natural erosion caused by the sea. It is this placer ilmenite – located within the active, raised and off-shore beaches, which will be Alba's primary target for exploration and development.

## Project Plans

While this heavy mineral sands project represents a new venture for Alba, the Company benefits from a large volume of historic work and studies that have been undertaken in the Thule region in respect of the potential for the exploitation of its mineral sands.

Most recently, the Company is aware of the significant progress made by Bluejay Mining Plc (AIM: JAY) at its Pituffik Project, only 9 km from Alba's Black Sands Project and on the same south-east trending coastline which has been identified by GEUS as the most highly prospective area in the entire region. Bluejay has defined an initial JORC resource, has recently announced (per its RNS of 10 July 2017) that Pituffik is the highest graded mineral

sand ilmenite project globally and is pushing forward with its plans for the development of the deposit. This gives the Company huge encouragement as Alba seeks to progress work on its neighbouring project area. The prospective Steensby Land coastline is now dominated by just two mining companies.

The early objectives of Alba's work at the Project will be likely to involve the completion of the following field work activities, with the main focus initially being on the active beaches:

- Contour mapping using satellite images.
- Ground penetrating radar ("GPR") to find the highest accumulations of black sand.
- Ground magnetic survey to identify areas where the sand has been concentrated.
- Sampling and assaying in order to confirm grade.
- Trenching at the best targets in order to confirm the results of the GPR and magnetic study.
- Auger drilling or push drilling to prove the continuity of thickness and grade and confirm an initial JORC resource.
- Testing for ilmenite-bearing sediments within the shallow, off-shore beaches.

In Alba's view, this work can be carried out relatively inexpensively when compared to traditional hard rock exploration and drilling.

We intend to submit a work programme to the Mineral Licensing and Safety Authority (MLSA) in Greenland shortly and to undertake much of this work in the forthcoming field season, with the objective that by the close of the present field season we will have significantly progressed the Company's understanding of the grade and extent of the mineralization at the Project.



**Image 2: Thule Air Base with its airport and pier and Saunders Island opposite.**

## **Ilmenite and the Titanium Dioxide Market**

Ilmenite is the primary source of titanium dioxide, TiO<sub>2</sub>. Titanium dioxide is mined as ilmenite, rutile or, in lesser quantities, leucosene. It is a dark coloured mineral which, with processing, becomes white and opaque. It is primarily used as a whitening pigment in paints, plastics and paper. Other uses include the manufacture of titanium metal.

Titanium dioxide feedstocks are graded by their titanium dioxide content. Feedstocks are either sold as raw minerals (rutile and chloride or sulphate ilmenite) or as processed or upgraded feedstocks, whereby ilmenite is processed to increase its titanium dioxide content. Upgraded feedstocks are synthetic rutile, chloride and sulphate slag and upgraded slag.

Titanium dioxide feedstocks are used predominately for the manufacture of pigment due to its opacity, UV resistance and non-toxic properties. This pigment is in turn used in paints, paper and plastics. Use in pigment accounts for approximately 80 to 90 per cent of total global demand for titanium feedstocks. Titanium metal and welding flux cord wire jointly account for the remaining 10 to 20 per cent of demand. Historically, demand for titanium feedstock has grown broadly in line with global GDP growth (*source: Iluka Resources Ltd*).

According to Lucintel, the global titanium dioxide market is expected to reach an estimated \$18.2 billion by 2021 and is forecast to grow at a compound annual growth rate (CAGR) of 3.4% from 2016 to 2021. The major growth drivers for this market are growing demand for titanium dioxide in end use industries like paint, coatings and plastics. The Asia Pacific region is expected to remain the largest market due to growth of those end use industries, economic expansion in India and China and growing consumption of paints and coatings particularly in the automotive and construction industry (*source: Lucintel, January 2017*).

## **Licence Details**

Exclusive mineral exploration licence 2017/29 has been granted to Alba's wholly-owned subsidiary, White Eagle Resources Limited. The licence covers all mineral resources except hydrocarbons, radioactive elements and hydro-power. The Company's focus will be on exploration for heavy mineral sands, principally ilmenite. The licence is granted for a period of five years, and renewal thereafter for a further period of five years is subject to fulfilment of licence conditions including minimum expenditure obligations.

This announcement contains inside information for the purposes of Article 7 of EU Regulation 596/2014.

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## **Competent Person's Declaration**

The information in this announcement that relates to the geology, exploration results and work programme is based on information compiled by and reviewed by EurGeol Dr Sandy M. Archibald, PGeo, Aurum Exploration Services, who is a Professional Geologist and Member of the Institute of Geologists of Ireland, and a Fellow of the Society of Economic Geologists. He is a geologist with fifteen years' experience in the exploration industry, and ten years post-graduate studies.

Sandy M. Archibald is a Technical Advisor to Alba Mineral Resources plc and has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration, and to the type of activity which he is undertaking to qualify as a Competent Person as defined in the June 2009 Edition of the AIM Note for Mining and Oil & Gas Companies. Sandy M. Archibald consents to the inclusion in the announcement of the matters based on the information in the form and context in which it appears and confirms that this information is accurate and not false or misleading.

## **Alba's Project Portfolio**

### **Oil & Gas**

*Horse Hill (Oil & Gas, UK):* Alba holds a 15 per cent interest in Horse Hill Developments Limited, the company which has a 65 per cent participating interest and operatorship of the Horse Hill oil and gas project (licences PEDL 137 and PEDL 246) in the UK Weald Basin.

*Brockham (Oil & Gas, UK):* Alba has a direct 5 per cent interest in Production Licence 235, which comprises the previously producing onshore Brockham Oil Field.

### **Mining**

*Amitsoq (Graphite, Greenland):* Alba owns a 90 per cent interest in the Amitsoq Graphite Project in Southern Greenland and has an option over the remaining 10 per cent.

*Black Sands (Ilmenite, Greenland):* Alba owns 100 per cent of mineral exploration licence 2017/29 in the Thule region, North-West Greenland.

*Limerick (Base Metals, Ireland):* Alba has 100 per cent of the Limerick base metal project in the Republic of Ireland.

*El Mreiti (Uranium, Mauritania):* Alba has applied for the reissue of a uranium permit in northern Mauritania, centred on known uranium-bearing showings.

Alba continues actively to review numerous other project opportunities which have value-enhancing potential for the Company whether by bolt-on or stand-alone acquisition, farm in or joint venture.

Web: [www.albamineralresources.com](http://www.albamineralresources.com)