



AmericanPacific

BORATE & LITHIUM
LIMITED

ASX Announcement

ASX Code: ABR

ACN: 615 606 114

12 October 2017

ABR Delivers Positive Scoping Study Progress Update

- **Work progressing quickly on a Scoping Study¹ for a two phase boric acid operation. Lithium by-product studies progressing in parallel**
- **Low pre-production capex targeted**
- **Initial results based on 33 historic drill holes, 17 production wells, pilot plant operations, metallurgical tests, laboratory-derived data, engineering studies and previous feasibility studies**
- **Flow sheet, mass balance, reagent consumption and operating cost estimates suggest the production of a high purity boric acid product can be produced**
- **Modest acid consumption of less than 0.6 tonnes per tonne of boric acid produced**
- **Preliminary C1 operating cost estimates are encouraging with no lithium by-product credit**
- **Maiden JORC Compliant Mineral Resource Estimate and Scoping Study remain on track for completion in Q4 2017**

American Pacific Borate and Lithium, (**ASX: ABR**) ("APBL", or "the Company") is pleased to provide a progress update on Scoping Study level mineral processing studies and operating cost estimates on its 100%-owned Fort Cady Borate and Lithium Project ("the Project") in Southern California, USA.

¹ Cautionary Statement on Fort Cady Scoping Study Progress Update

The Scoping Study progress update referred to in this announcement has been undertaken to ascertain whether a business case can be made for raising the further funding needed to proceed to more definitive studies on the viability of the Fort Cady Project. It is a preliminary technical and economic study of the potential viability of the Fort Cady Project. It is based on low level technical and economic assessments that are not sufficient to support the estimation of ore reserves. Further confirmatory resource drilling and evaluation work and appropriate studies are required before the Company will be in a position to estimate any ore reserves or to provide any assurance of an economic development case.

The Scoping Study progress update is based on the material assumptions outlined below. These include assumptions about the availability of funding. While the Company considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.

To achieve the range of outcomes indicated in the Scoping Study, the Company estimates funding in the order of US\$80m to US\$90m (Phase 1) will likely be required for commercial-scale operations. Investors should note that there is no certainty that the Company will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares.

COMPANY DIRECTORS

Harold (Roy) Shipes - Non Executive Chairman

Michael X. Schlumberger - Managing Director & CEO

Anthony Hall - Executive Director

Stephen Hunt - Non Executive Director

John McKinney - Non Executive Director



ISSUED CAPITAL

169.8 million shares

15.0 million shares

REGISTERED OFFICE

Level 24, Allendale Square
77 St Georges Terrace, Perth, WA, 6000, Australia

US OFFICE

16195 Siskiyou Road, #210,
Apple Valley, CA, 92307, USA

CONTACT

T: +61 8 6141 3145

W: www.americanpacificborate.com



It is also possible that the Company could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project. If it does, this could materially reduce the Company's proportionate ownership of the project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study.

American Pacific Borate and Lithium Managing Director & CEO Michael Schlumpberger said:

"We are very excited with the initial results of our boric acid project Scoping Study work. We appear likely to deliver a Scoping Study showing low capex, high margin and a proven commercial processing route.

Whilst our initial focus is on delivering a compelling boric acid operation we continue to believe there is a strong chance we will deliver real lithium carbonate upside that will enhance the project metrics".

Boric Acid Scoping Study

The Company has engaged Minneapolis based engineering and environmental consulting company Barr Engineering Co. ("Barr") and mineral processing expert consultant Mr Mike Rockandel to manage its mineral processing program. Barr and Mr Rockandel have extensive experience in process testwork, pilot plants, process design and engineering in a number of commodities including borates, soda ash and trona. Work to date has utilised 33 historic drill holes, 17 production wells, pilot plant operations, laboratory-derived data and previous feasibility and engineering studies to evaluate commercial processing of colemanite ore with the goal of providing a process concept. As part of the work program, Barr and Mr Rockandel will deliver flow sheets, mass balances, reagent consumption estimates, process plant operational cost estimates and capital expenditure estimates.

The Fort Cady Project has the two key Land Use Permits and an Environmental Impact Statement / Environmental Impact Report for the production of 90,000 tons per annum of boric acid. The Company is basing the Scoping Study on feasibility studies and operational parameters used by previous owners to gain the aforementioned permits. APBL is also evaluating scaling-up the production rate to be more in line with the broader potential that the Company believes the Project holds. The initial boric acid Scoping Study will not consider adding a lithium circuit given time constraints with respect to lithium testworks and the Company's desire to release some financial metrics on the Project. The results of the lithium testworks are expected to be included into an optimisation study.

Historical records identify multiple mineral processing options

As part of the current work program, the Company's consultants have reviewed historical information on mineral processing for the Fort Cady Project and identified several potential mineral process flowsheets for the production of boric acid. Simple mass and energy balances have been modelled in METSIM™ for each option and Class 5 operating costs projected. Two of the process designs have been short-listed for more detailed engineering studies, including flow sheet optimisation and estimation of capital and operating expenses.

Preliminary process designs and Opex estimates highlight potential for high operating margins

The separation of boric acid from impurities will be performed by two-stage cooling crystallisation, either via cooling ponds ("**Option 1**") or mechanical cooling ("**Option 2**"). The respective flow sheets are shown in **Figures 2 & 3** and the key operating metrics and operating costs for the two options are detailed in **Table 1**. The process flow sheets for both options are very similar and it is envisaged the process design will consist of the following steps:

1. Acid in-situ solution mining using heated (58°C) weakly acidic solution (4% HCl)
2. Cooling to produce crude boric acid crystals
3. Collection, de-watering and re-dissolution of the crude crystals to produce a concentrated boric acid solution



4. Cooling recrystallisation of pure boric acid
5. Crystal de-watering and drying
6. Solvent extraction (SX) to recover soluble boric acid from the crude crystallisation step
7. Regeneration of the injection solution by sulphuric acid acidification of the SX reject solution (raffinate)
8. De-watering and disposal of the gypsum stream

Modest acid consumption underpins potential for high operating margins

A key operational and financial advantage of the proposed process design for Fort Cady is low acid consumption. Sulphuric acid (“H₂SO₄”) consumption is estimated at 0.55t per tonne of boric acid produced while the consumption of purchased hydrochloric acid (“HCl”; 35% strength) is 0.09t per tonne of boric acid produced. Total consumption of HCl during solution mining is estimated at 1.16t per tonne of boric acid however 94% is regenerated by reacting the less expensive reagent H₂SO₄ with calcium chloride (CaCl₂).

Table 1. Key operating metrics and C1 operating costs for process design options.

Operating cost item	Unit of Measure	Option 1		Option 2	
		Cooling ponds		Mechanical cooling	
		Quantity	\$/t BA	Quantity	\$/t BA
Natural Gas	mscf	214,524	9.20	393,096	16.85
Electricity	MWh	31,755	46.68	52,560	77.25
Water	mgpy	42,600	4.18	49,459	4.85
SX Solvent	gpy	4,761	0.59	-	-
Hydrochloric Acid	tpa	6,807	20.85	6,683	20.47
Sulfuric Acid	tpa	44,578	81.90	44,579	81.90
Gypsum / Calcite to TSF	tpa	100,847	6.17	100,847	6.17
Maintenance Materials			18.37		18.37
Product freight to port			15.00		15.00
All labour			121.71		121.71
Miscellaneous			20.00		20.00
			\$ 345		\$ 383

Key inputs (US\$): Natural gas \$3.50/mscf; Electricity: \$120/MWh; Water: \$8/mgal; SX solvent: \$10/gal; HCl: \$250/t; H₂SO₄: \$150/t; Waste movement to TSF: \$5/wt; Acid prices are ABR internal estimate based on retail prices

North American boric acid prices are estimated at between US\$800 to US\$1,000 per tonne (Source: Roskill Boron: Global Industry Markets and Outlook, 2015, 13th edition).

Initial Capital Expenditure Target

Based on the two options for the flow sheet, the Company continues to target pre-production capital expenditure for commercial boric acid production in the range of US\$80m to US\$90m (including 25% contingency). Capital expenditure for expanded production scenarios will be evaluated as part of the Scoping Study.

Scoping Study Timeline

The Company is working towards the release of a maiden JORC Compliant Mineral Resource Estimate (MRE) in Q4 2017. The completion of the MRE will enable the release of the Scoping Study that is also being targeted for completion and release in Q4 2017. As noted above, the Company is then likely to include the results of lithium testworks in an optimisation study prior to commencing work on the Definitive Feasibility Study and construction ready activities.



For further information contact:

Anthony Hall
Executive Director
Ph: +61 417 466 039

Simon Hinsley – NWR Communications
Investor Relations – APAC
Ph: +61 401 809 653

Charlie Bendon – Tamesis Partners
Investor Relations – Europe
Ph: +44 7968 167030

About American Pacific Borate and Lithium Limited

American Pacific Borate and Lithium Limited is focused on advancing its 100%-owned Fort Cady Boron and Lithium Project located in Southern California, USA (**Figure 1**). Fort Cady is a highly rare and large colemanite deposit with substantial lithium potential and is the largest known contained borate occurrence in the world not owned by the two major borate producers Rio Tinto and Eti Maden.

The Project has a historical non-JORC mineral estimate of 115Mt at 7.4% B₂O₃ or 13.2% H₃BO₃ (boric acid) equivalent (5% B₂O₃ cut off) including 69Mt at 9% B₂O₃ and 16% H₃BO₃ (7% B₂O₃ cut off). More than US\$50m has historically been spent at Fort Cady, including resource drilling, metallurgical test works, well injection tests, permitting activities and substantial pilot-scale test works.

The Fort Cady Project can quickly be advanced to construction ready status due to the large amount of historical drilling, downhole geophysics, metallurgical test work, pilot plant operations and feasibility studies completed from the 1980's to early 2000's. 33 resource drill holes and 17 injection and production wells were previously completed and used for historical mineral estimates, mining method studies and optimising the process design. Financial metrics were also estimated which provided the former operators encouragement to commence commercial-scale permitting for the Project. The Fort Cady project was fully permitted for construction and operation in 1994. The two key land use permits and Environmental Impact Study remain active and in good standing.

Although pilot plant activities can commence immediately one of the Company's primary goals is to accelerate the development pathway for the Fort Cady Project with the target of being construction ready in CY18. In the interim a simple and low-cost flow-sheet is proposed with a focus on producing boric acid on-site.

www.americanpacificborate.com

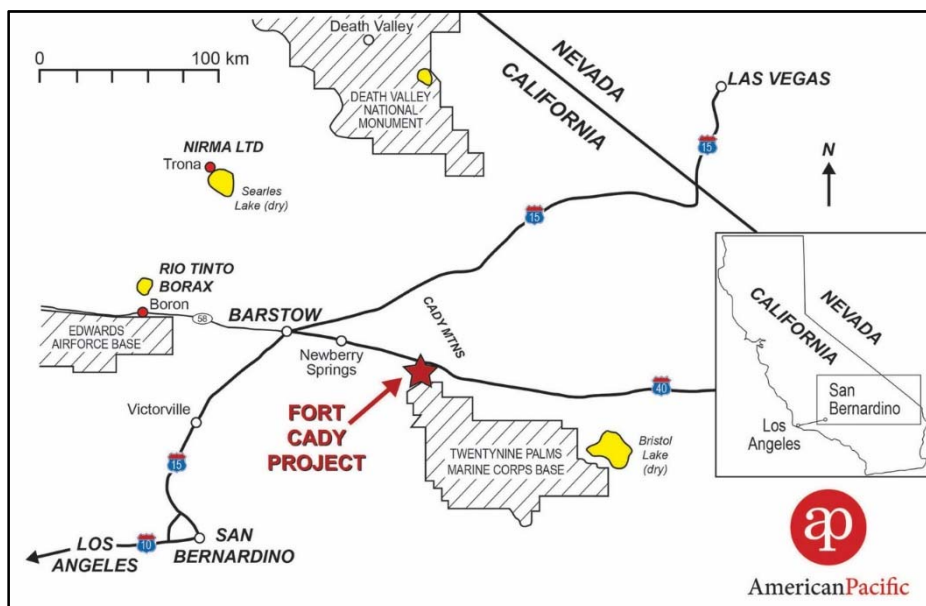


Figure 1: Location of the Fort Cady Borate and Lithium Project, California USA.

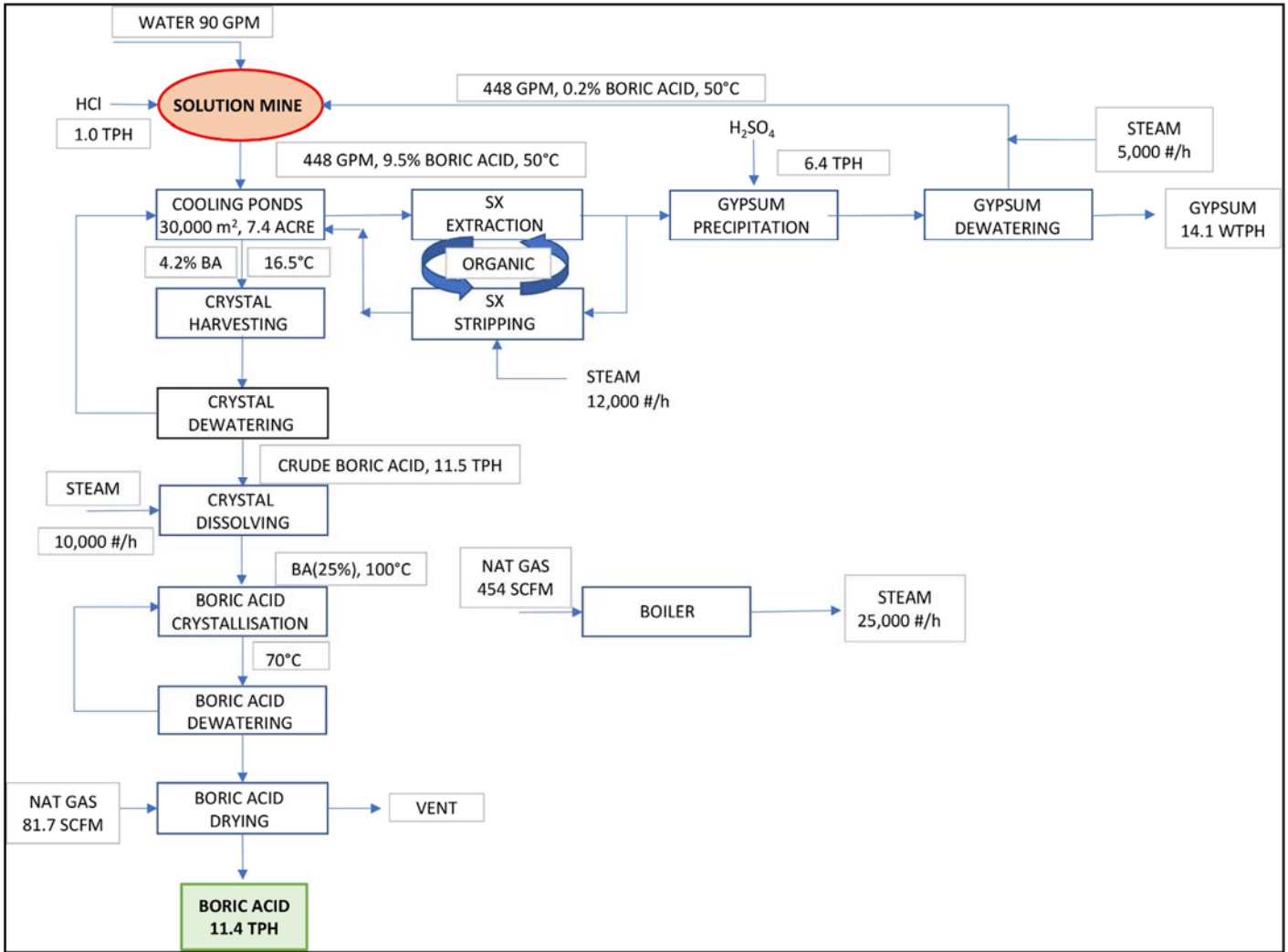


Figure 2. Process flow sheet highlighting mass balances for Option 1: Cooling ponds

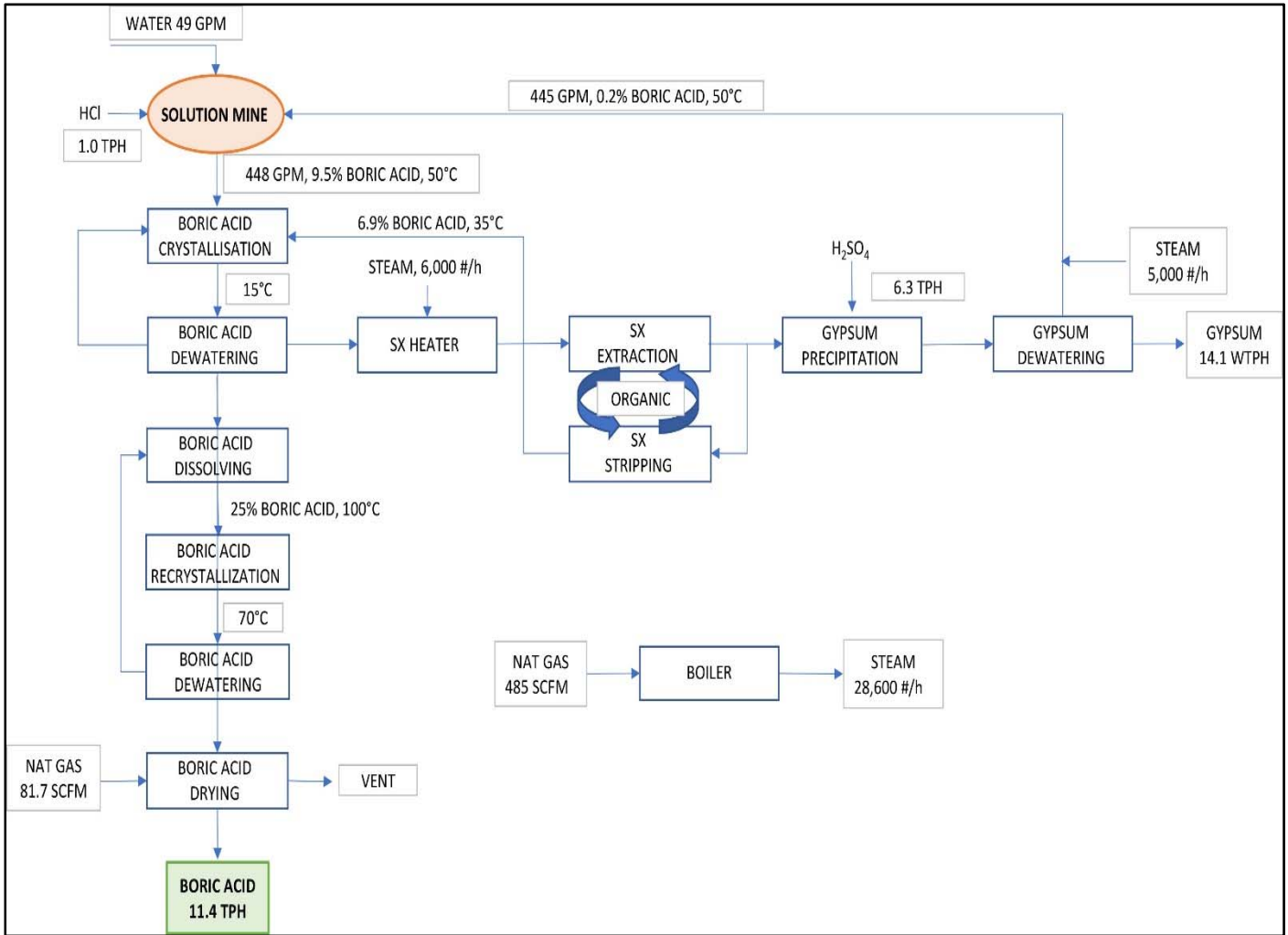


Figure 3. Process flow sheet highlighting mass balances for Option 2: Mechanical cooling