



**IBC ADVANCED ALLOYS CORP.**

**MANAGEMENT'S DISCUSSION AND ANALYSIS**

**SIX MONTHS ENDED DECEMBER 31, 2016**

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**IBC Advanced Alloys Corp.**  
**Management's Discussion and Analysis**  
Six Months Ended December 31, 2016

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*The following is management's discussion and analysis ("MD&A") of IBC Advanced Alloys Corp., and its subsidiaries, prepared as of February 22, 2017. This MD&A should be read together with the unaudited interim condensed consolidated financial statements for the six months ended December 31, 2016 and the audited consolidated financial statements and related notes for the year ended June 30, 2016. Financial amounts, other than amounts per share or per pound, are presented in thousands of United States dollars ("\$\$") unless indicated otherwise. Canadian dollar amounts are denoted by "C\$".*

*The terms "IBC", "we", "us" and "our" refer to IBC Advanced Alloys Corp. and its subsidiaries, unless the context otherwise requires.*

*Certain information included in this MD&A may constitute forward-looking statements. Statements in this report that are not historical facts are forward-looking statements involving known and unknown risks and uncertainties, which could cause actual results to vary considerably from these statements. Readers are cautioned not to put undue reliance on forward-looking statements.*

*The Company's unaudited interim consolidated financial statements for the period ended December 31, 2016 have been prepared in accordance IAS 34 – Interim Financial Reporting using accounting policies consistent with International Financial Reporting Standards ("IFRS"), as issued by the International Accounting Standards Board and interpretations of the International Financial Reporting Interpretations Committee.*

*Additional information relating to us is available for view on SEDAR at [www.sedar.com](http://www.sedar.com).*

## **Our Business**

We are primarily engaged in developing and manufacturing advanced alloys, in particular beryllium-aluminum alloys and specialty copper alloys. Our head office is located in Franklin, Indiana. We operate four plants in the United States ("US") that manufacture, heat-treat, machine or market copper-beryllium, beryllium-aluminum, copper-based master alloys and similar specialty alloy products including beryllium-aluminum castings. Our manufacturing operations currently employ 70 people and comprise two divisions: Copper Alloys and Engineered Materials.

- Copper Alloys manufactures and distributes a wide variety of copper alloys as castings and forgings: beryllium copper, chrome copper, oxygen-free high conductivity copper and aluminum bronze in plate, block, bar, rings and specialty copper alloy forgings for the industrial welding, oil and gas, plastic mold, metal melting, marine defense, electronic and industrial equipment markets.
- Engineered Materials manufactures and supplies high-performance beryllium-aluminum components to the aerospace and high-tech manufacturing sectors.

At present, we are engaged in research and development on scandium-containing alloys, and we are monitoring developments related to the potential use of beryllium oxide in enhanced nuclear fuels, which has been the subject of previous research by the Company.

We were formed by an amalgamation under the laws of British Columbia on November 23, 2007 and our common shares are listed on the TSX Venture Exchange (the "TSX-V") under the symbol "IB" and on the OTCQB market under "IAALF".

### **Corporate Developments**

- In December 2016, we received a third purchase order from Lockheed Martin to produce components for the F-35 Lightning II Electro-Optical Targeting System ("EOTS"). See *Engineering Materials* below.
- In November 2016, we achieved re-certification of our ISO 9001:2008 and AS9100:2009 Rev. C standards for quality management systems at our Wilmington, MA facility, where we produce precision cast beryllium-aluminum products.
- In October 2016, Anthony Dutton resigned as a director and officer of the Company effective October 31, 2016 (see *Related Party Transactions* below).
- In September 2016, we were accepted as an approved forging supplier by Newport News Shipbuilding and by General Dynamics' Electric Boat Corporation.
- In August 2016, the Company settled \$125,748 owing to our Chief Executive Officer "CEO" and director through the issuance of 203,681 shares.

### **Board of Directors and Management Changes**

Simon Anderson resigned as Chief Financial Officer "CFO" effective November 11, 2016 and joined our board of directors as a non-independent director. Previously, Simon served since 2007 as CFO for IBC and its predecessor company. A CPA, CA with 30 years' experience, he has worked as an officer or director of public companies listed on the TSX Venture Exchange, TSX, and/or NASDAQ for almost 20 years. He has extensive experience in financing, mergers and acquisitions, corporate governance, and securities regulation practices, and he worked for nine years in business valuation with BDO Canada LLP. Currently a director of Sinovac Biotech Ltd. (NASDAQ: SVA), Simon received his Bachelor of Commerce in Accounting and Management Information Systems from the University of British Columbia.

David Anderson was appointed as CFO effective November 11, 2016. David (no relation to Simon Anderson) is a Certified Management Accountant with over 20 years of progressive experience with public and private manufacturing companies, including mergers and acquisition. He has worked at IBC and its predecessor company since 2007, serving in a variety of accounting, human resources, and information technology roles. He received his BA in Accounting from the University of Indianapolis.

## Manufacturing Operations

We currently have four manufacturing operations in the United States that employ a total of 70 people.

Location	Building Area		Leased/Owned	Employs
	m <sup>2</sup>	sq ft		
<b>Copper Alloys</b>				
Franklin, IN	4,500	48,800	Owned	34
Royersford, PA	1,500	16,000	Leased	7
New Madrid, MO	2,500	26,500	Owned	6
				<u>47</u>
<b>Engineered Materials</b>				
Wilmington, MA	5,800	63,000	Leased	23
				<u>70</u>

Most of the Company's management and administration are based at the Franklin, IN facility.

### *COPPER ALLOYS*

We manufacture and distribute a wide variety of copper alloys as castings and forgings, including beryllium copper, chrome copper, oxygen-free high conductivity copper, and aluminum bronze in plate, block, bar, rings and specialty copper alloy forgings for various markets and applications. We sell directly to end users and serve some markets through a network of established dealers and distributors. Our Copper Alloys operations are based in Franklin, Indiana, where we maintain a forging (hammer, press and ring rolling), heat-treating and machining operation. We cast billets at plants in Royersford, Pennsylvania and New Madrid, Missouri. Our Franklin plant sits on 4.8 hectares (12.0 acres) of land that has considerable room for expansion.

We source copper alloys in cast billet, slab or ingot from mills in North America, Europe and Asia and convert these into usable industrial products serving the industrial welding, oil and gas, plastic mold, metal melting, marine defense, electronic and industrial equipment markets. We also provide tooling components for the North American automotive industry, the European and North American consumer plastic tooling producers, the global oil and gas service industry, the prime North American submarine and aircraft carrier producers and repair facilities including the US Navy, electronics industries and general equipment manufacturers. We produce material at two IBC-owned mills and buy other billet from independent third-party mills.

We have expertise in melting and casting beryllium copper and other beryllium-containing alloys. Our casting operations are a primary producer-supplier of beryllium copper casting and master alloy ingot products in North America and markets around the world. Our copper alloys operations also manufacture beryllium nickel and low-beryllium-content beryllium-aluminum alloys. We offer our customers a full range of manufacturing and support services including casting and master alloy products, cast and forged billet products, semi-continuous cast input billets and wrought products. We manufacture our beryllium alloys utilizing either pure metallic beryllium or certified beryllium copper master alloy.

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Our Royersford facility has three furnaces that have been adapted to meet the specialized requirements of beryllium alloy manufacturing. We have strong technical and manufacturing engineering resources in the highly specialized beryllium and beryllium containing alloy industry. This gives us the capability to manufacture large 21-inch diameter beryllium copper input billets weighing up to two tons. These large-scale as-cast billets exhibit consistently fine-grained, uniform micro-structures coupled with high purity, low carbide chemical compositions.

Our New Madrid plant is located on a 2.4-hectare (6.0 acres) site 265 kilometers (165 miles) south of St. Louis, Missouri. It has two furnaces and is capable of producing billets in a range of sizes and compositions. This facility is underutilized and, as a result, there is room for significant expansion of plant operations at this location.

*ENGINEERED MATERIALS*

Engineered Materials supplies high-performance beryllium-aluminum components to the aerospace and high-tech manufacturing sectors. We currently manufacture the Beralcast<sup>®</sup> and ABX<sup>™</sup> families of metal matrices that are used in commercial and military applications requiring complex, lightweight or high-stiffness parts. We have additional, higher-performance products in development. Using our proprietary manufacturing techniques, we plan to make beryllium-aluminum components more accessible and cost-effective.

In general, Beralcast<sup>®</sup> and ABX<sup>™</sup> alloys serve as a higher-performance or lower-cost replacement materials for cast aluminum, magnesium, titanium, metal matrix composites, non-metallic composites, and pure beryllium or powder metallurgy beryllium-aluminum. Some of the varied applications include automotive braking and structural components and aerospace and satellite system components.

The principal Beralcast<sup>®</sup> metal matrix is more than three times stiffer than aluminum with 22% less weight and can be precision-cast to simple and complex configurations. This material is very lightweight with a high modulus of elasticity and can be precision cast for three-dimensional stability. Beralcast<sup>®</sup> is ideally suited for certain demanding semiconductor manufacturing equipment, computer components and other commercial and aerospace applications, and it allows for a near-net shape to be cast for maximum manufacturing efficiencies.

Binary beryllium-aluminum composites were developed by a US corporation, which was originally a metallurgical laboratory affiliated with MIT, in cooperation with Lockheed Martin. We own the intellectual property relating to the more advanced development of this technology, which is a proprietary castable metal matrix composite beryllium aluminum alloy now manufactured as Beralcast<sup>®</sup>. We believe that a competitor has launched an alternative cast beryllium-aluminum product, which, if commercially viable, would be a direct competitor to Beralcast<sup>®</sup> and ABX<sup>™</sup>.

We have trade name rights to Beralcast<sup>®</sup> and ABX<sup>™</sup>; proprietary know-how; manufacturing equipment; marketing and supply agreements; and US beryllium stockpile bidding requirements and bona fides. Since the manufacturing process is different from that employed for Copper Alloys, we operate a separate manufacturing facility optimized for Beralcast<sup>®</sup> and ABX<sup>™</sup> alloys (in Wilmington, MA).

We are developing Engineered Materials' business by undertaking product-focused development initiatives with a heavy emphasis on defense applications. Generally, the process is as follows:

1. **Memorandum of understanding** – The first step is to assess the feasibility of using Beralcast<sup>®</sup> in the customer's application.

2. **Non-recurring engineering** – At various stages between the initial feasibility assessment and production, we and our customer engage in engineering work to tailor the part design to the material and assess its performance.
3. **Hard tooling** – Once production is likely, the customer asks us to design, manufacture and implement hard tooling to be included as part of the final qualification process. Although not a guarantee that a production order will follow, a hard tooling contract is a very strong indication that the customer expects to enter volume production of the component.
4. **Low-Rate Initial Production (“LRIP”)** – New programs typically work through a start-up phase to iron out problems before production reaches long-term levels. As part of the first production run, we work with our customer on various quality assurance steps culminating in the first article inspection.
5. **Volume production.**

We are currently working on various initiatives at stages from memorandum of understanding to volume production.

#### *Recent Business Initiatives*

In September 2014, Lockheed Martin Missiles and Fire Control selected Engineered Materials to provide critical cast components for the Electro-Optical Targeting System (“EOTS”) on the F-35 Lightning II. EOTS is multi-function system that provides precision air-to-air and air-to-surface targeting capability. The first component covered by this contract is an EOTS azimuth gimbal housing being manufactured using Beralcast<sup>®</sup>, Engineered Material's proprietary beryllium-aluminum casting alloy.

Lockheed Martin has awarded us three contracts for production azimuth gimbal housings for OEM aircraft and spares. These contracts are for the ramp-up production period, or LRIP. The first contract, awarded in September 2013, was for LRIP lots 7 and 8, and the second contract awarded in August 2014 was for LRIP lots 9 and 10. We have completed production for LRIP lots 7 and 8. We expect to complete LRIP lots 9 and 10 by the third quarter of current fiscal year ending June 30, 2017. The third contract is for LRIP 11.

The value of the initial contract in 2013 was just over \$2.0 million, including machining, non-recurring engineering and hard tooling deliverables. The value of the second contract in 2014, which is for castings only, was for a similar amount. The third contract, which is for a single LRIP, is expected to be valued at approximately \$2.6 million. These contracts, with subsequent LRIP contract awards, have the potential to increase significantly over the life of the F-35 program. The EOTS system is being produced by Lockheed Martin for all the F-35 variants. Although our production contracts are typically about one year, planned F-35 production is expected to run through 2035 with completion of over 3,000 aircraft.

We are currently pursuing other sales opportunities with several defense companies, including BAE Systems and two other major aerospace companies.

We are currently operating at much less than capacity and we refurbished part of our vacuum furnace in 2014. New furnace components to replace aging equipment and to increase throughput via improved performance were ordered in July 2016 and are scheduled to be installed in the second quarter of calendar year 2017.

#### *BUSINESS RISKS*

Some of the risks that our business faces, which are specific to our operations, include the following:

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*Dependence on Ulba Metallurgical Plant*

We are dependent on Ulba Metallurgical Plant ("Ulba") for our supply of vacuum-cast beryllium and beryllium copper master alloy. Ulba operates a beryllium processing and manufacturing facility and is owned by Kazatomprom, the national atomic company of Kazakhstan. As we have done in the past, we may also be able to source beryllium from the US National Defense Stockpile and a third-party business from time to time. We have entered into long-term beryllium and beryllium copper master alloy supply agreements lasting through 2021. Ulba's ability to honor its supply obligations will depend on its ability to source raw materials. We are unable to obtain reliable information as to the extent and availability of Ulba's raw material supply, although we understand that production uses long-term stockpiles. Any disruptions in Ulba's ability to manufacture beryllium or CTMA to our specifications would have a materially adverse effect on our business.

*Disruptions of our Manufacturing Operations*

From time to time, our operations are adversely affected by disruptions caused by such things as water line failures, power outages, equipment failures and adverse weather. These issues normally only cause short-term interruptions but can affect our ability to meet our quarterly revenue and profitability objectives.

*Need to Meet Product Specifications*

All of the products that we manufacture are required to conform to a specification. Some of these specifications are very exacting and small variations in process can cause our products to fall short of the required standard. In addition, customers' requirements can change from time to time. If we are unable to address these specification issues in a timely manner, we are at risk of losing short-term revenue and even long-term production contracts.

*OPERATING PERFORMANCE AND OUTLOOK*

*Copper Alloys*

Our first and second fiscal quarters declined compared to equivalent quarters in prior years. The continued softness in sales is partly due, we believe, to a general sector weakness resulting from lower resource activity, particularly oil and gas. We expect near-term sales to gradually improve as business activity resumes and as reflected in higher copper prices, which are often reflective of higher demand in general for copper products. We temporarily reduced our headcount by six employees at our foundry operations and reallocated two employees to our Engineered Materials division during portions of our second fiscal quarter. Equipment upgrades and other capital improvements that are underway are expected to improve revenues and profit margins beginning in fiscal Q4.

Copper Alloys sales also are affected by changes in the underlying price of commodities, primarily copper. Indicative copper prices per pound are:

	<b>2016</b>	<b>2015</b>
June 30	\$2.20	\$2.64
September 30	\$2.21	\$2.29
December 31	\$2.50	\$2.10

We aim to pass the cost of copper through to our customers and we do not hold large inventories of copper. Accordingly, our profitability should not be affected by the price of copper

in the long term except to the extent that high copper prices discourage consumption or that competitors lower their margins to obtain business. In the short term, price fluctuations can have a bearing on our profitability as we realize gains or losses on our inventories. Since copper is a significant component of products we sell, the price of copper does materially affect our revenues.

### *Engineered Materials*

Engineered Materials continues to fulfill orders related to our ongoing Lockheed Martin business. We expect to complete LRIP lots 9 and 10 by the third quarter of current fiscal year ending June 30, 2017. Production and delivery of LRIP 11 will begin once LRIP lots 9 and 10 are completed. LRIP 11 represents a 16% increase in volume compared to LRIP lots 9 and 10. Sales of commercial products within the semiconductor manufacturing sector have experienced strong growth compared to the first half of fiscal 2016. Our order intake rate is continuing to follow this growth trend.

In previous fiscal years, our Engineered Materials division has typically generated 10% to 15% of our revenues. We now expect Engineered Materials' proportion of total revenue to increase over the next few years as that segment grows. In the first half of fiscal 2017, Engineered Materials generated 23% of our sales.

Engineered Materials continues to implement its capital improvement program. Several items including digital radiography equipment, automated finishing equipment, material handling equipment, and an upgrade to the coordinate measurement machine to accommodate aerospace inspection requirements have been completed. Other major items including the furnace structural upgrades with full automation and furnace cooling sub-systems are expected to be installed by June 30, 2017. When completed, Engineered Materials will have a fully integrated factory automation system controlling the furnace and cooling equipment.

### **Research Initiatives**

From time to time, we sponsor and assist in research and development ("R&D") initiatives with a view to increasing long-term demand and new market opportunities for beryllium and beryllium oxide. Our current R&D focus is on developing scandium-containing aluminum alloys. We have significant in-house expertise in the development of these ultra high-performance alloys, and the head of our Engineered Materials division is a named co-inventor of two pending patents regarding scandium-bearing aluminum alloys. This work was conducted while he was with The Boeing Company, which has actively explored the potential integration of scandium-containing aluminum alloys in commercial aircraft.

In previous years, we actively engaged in R&D regarding the potential use of beryllium oxide in enhanced nuclear fuels. Since 2008, we have sponsored collaborative research agreements with Purdue University and Texas A&M to develop a new type of BeO nuclear fuel. Work to date has confirmed that  $UO_2 - BeO$  fuel is longer lasting and more efficient and provides a larger safety margin than current nuclear fuels. Under the terms of the collaborative research agreements, IBC has an option to enter into an exclusive royalty-bearing license for commercial application to the intellectual property relating to the development of an advanced BeO nuclear fuel with both Purdue and Texas A&M. Purdue has filed provisional patents covering the IBC-funded nuclear fuel research. The next step in this research initiative will be to have an industrial assembly of the BeO-enhanced fuel approved for irradiation in a test reactor. We have not allocated funds to this initiative but are seeking a partner to jointly fund the next development step.

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**Financial**

Except as noted, all financial amounts are determined in accordance with IFRS and expressed in thousands of US dollars, except per-share amount.

*SELECTED QUARTERLY INFORMATION*

During our most recent eight quarters, we have not incurred any loss from discontinued operations or extraordinary items.

Quarter Ended	Revenue	Loss for the period	Basic and diluted loss per share <sup>1</sup>
	\$000	\$000	\$
March 31, 2015	4,479	(582)	(0.07)
June 30, 2015	3,572	(996)	(0.12)
September 30, 2015	4,232	(721)	(0.08)
December 31, 2015	3,324	(1,774)	(0.19)
March 31, 2016	4,741	(296)	(0.03)
June 30, 2016	4,077	(1,139)	(0.06)
September 30, 2016	3,263	(1,607)	(0.05)
December 31, 2016	3,571	(838)	(0.03)

<sup>1</sup> The sum of quarterly loss per share may not add to year-to-date totals due to rounding

Factors affecting quarterly losses include:

- June 30, 2015 – While Engineered Materials enjoyed a strong quarter, Copper Alloys operations experienced a weak quarter that reflected a trend towards lower order intake.
- December 31, 2015 – Copper Alloys sales decreased markedly due in part to general sector problems (weak demand, lower price of copper) but also other factors such as ongoing customer equipment-related issues that resulted in lower orders.
- March 31, 2016 – We enjoyed record sales in our Engineered Materials division, and our loss decreased as a result.
- June 30, 2016 – Sales declined in our Engineered Materials division compared to the quarter ended March 31, 2016 due to the timing of shipments.
- September 30, 2016 – Sales declined in our Engineered Materials division compared the fiscal quarter ended September 30, 2015, due to the timing of shipments in prior fiscal quarter. The Copper Alloys division experienced a weak quarter due to the timing of shipments, as the sales order backlog remains strong.
- December 31, 2016 – Engineered Materials enjoyed a strong quarter with increased demand for its products. The Copper Alloys division continued to experience weak demand but was able to improve pricing and reduce operating costs.

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*RESULTS OF OPERATIONS – SECOND QUARTER 2017*

We incurred a loss of \$838 for the three months ended December 31, 2016 compared to a loss of \$1,774 in the comparative 2015 period. A summary of our results of operations to loss before other items (“operating income (loss)”) follows:

	Three Months Ended December 31, 2016				Three Months Ended December 31, 2015			
	Copper Alloys \$	Eng. Mat. \$	Corp. \$	Consol- idated \$	Copper Alloys \$	Eng. Mat. \$	Corp. \$	Consol- idated \$
Sales	2,623	948	-	3,571	2,524	800	-	3,324
Cost of sales								
Materials	1,144	299	-	1,443	1,571	254	-	1,825
Labor	482	270	-	752	532	304	-	836
Subcontract	-	-	-	-	168	217	-	385
Overhead	428	391	-	819	519	432	-	951
Depreciation	147	82	-	229	142	87	-	229
Change in finished goods	54	(7)	-	47	(105)	(12)	-	(117)
	2,255	1,035	-	3,290	2,827	1,282	-	4,109
Gross profit (loss)	368	(87)	-	281	(303)	(482)	-	(785)
SG&A expenses	406	209	466	1,081	467	172	255	894
Operating income (loss)	(38)	(296)	(466)	(800)	(770)	(654)	(255)	(1,679)
Gross margin	14%	(9%)	-	8%	(12%)	(60%)	-	(24%)

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We incurred a loss of \$2,445 for the six months ended December 31, 2016 compared to a loss of \$2,495 in the comparative 2015 period. A summary of our results of operations to loss before other items ("operating income (loss)") follows:

	Six Months Ended December 31, 2016				Six Months Ended December 31, 2015			
	Copper Alloys \$	Eng. Mat. \$	Corp. \$	Consol- idated \$	Copper Alloys \$	Eng. Mat. \$	Corp. \$	Consol- idated \$
Sales	5,288	1,546	-	6,834	5,726	1,830	-	7,556
Cost of sales								
Materials	2,656	509	-	3,165	3,480	417	-	3,897
Labor	1,131	528	-	1,659	941	539	-	1,480
Subcontract	-	-	-	-	397	457	-	854
Overhead	899	749	-	1,648	769	710	-	1,479
Depreciation	293	165	-	458	257	174	-	431
Change in finished goods	2	100	-	102	(102)	(21)	-	(123)
	4,981	2,051	-	7,032	5,742	2,276	-	8,018
Gross profit (loss)	307	(505)	-	(198)	(16)	(446)	-	(462)
SG&A expenses	843	450	906	2,199	931	421	609	1,961
Operating income (loss)	(536)	(955)	(906)	(2,397)	(947)	(867)	(609)	(2,423)
Gross margin	6%	(33%)	-	(3%)	(0%)	(24%)	-	(6%)

*Segment Analysis*

A discussion about the significant components of the segment operating loss and net loss follows.

*Copper Alloys*

- Sales declined \$42 compared to the quarter ended September 30, 2016. Sales volume declined \$237. However, pricing improved relative to copper Comex values by \$195. Sales to metal service center customers declined, but were offset by sales to original equipment manufacturers as the Company continues to provide semi-finished goods to a multinational manufacturing customer in Asia. Gross profit improved \$429 to 14% on pricing improvements and temporary labor reductions in our foundry operations.
- Sales improved \$99 compared to the quarter ended December 31, 2015. Sales volume declined \$16, but pricing improved relative to copper Comex values by \$115. Sales to metal service center customers improved, as did sales to original equipment manufacturers. Gross profit improved \$671, also on pricing improvements and temporary labor reductions in our foundry operations.

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- Sales declined \$438 for the year-to-date compared to prior year. Sales volume declined \$557, but was offset by pricing improvements relative to copper Comex values by \$119. Sales to metal service center customers improved, while sales through all other sales channels declined. Gross profit improved \$323 on a favorable product mix, as well as pricing improvements and temporary labor reductions in our foundry operations.
- We try to pass prices changes (favorable or unfavorable) through to our customers but sharp declines in price adversely affect our profitability due to holding losses on inventory.

*Engineered Materials*

- Sales improved \$350 compared to the quarter ended September 30, 2016 and improved \$148 compared to the quarter ended December 31, 2015. Increased volume accounted for both improvements.
- Sales declined \$284 for the year-to-date compared to prior year. Sales declined \$745 as we elected to discontinue a subcontract machining contract to mitigate risk. This was offset by volume increases of \$461 in sales of specialty castings.

*Corporate*

- Corporate expenses increased \$211 compared to the quarter ended December 31, 2015 and increased \$26 compared to the quarter ended September 30, 2016. We completed payments on a consulting agreement with a director related to the private placement in May 2016. Compensation for the Board of Directors was reinstated in June 2016. We continued to incur additional expenses related to the closure of our corporate office in Vancouver, B.C. Stock-based compensation expense is higher than the prior year, related to management compensation and the private placement in May 2016.
- Corporate expenses increased \$297 compared to the year-to-date December 31, 2015 for predominantly the same reasons as previously mentioned.

*CHANGES IN FINANCIAL POSITION SINCE JUNE 30, 2016*

Changes in our financial position since June 30, 2016 relate to operations in the ordinary course.

*LIQUIDITY AND CAPITAL RESOURCES*

At December 31, 2016, we had working capital of \$2,377 including cash and equivalents of \$1,098, as compared to working capital of \$4,297 at June 30, 2016. Factors affecting our liquidity include:

- We have raised \$375, of which \$75 has been repaid, through the issuance of promissory notes which are due in the third quarter of fiscal 2017. We have agreed in principle with the parties involved to extend these notes by one additional year.
- Engineered Materials has a history of losses, but generated income in the third quarter of fiscal 2016 and order rate is improving compared to the prior fiscal year.
- Through to December 2016, the main limitation on our cash position was the cost of maintaining our corporate office and corporate development initiatives. We have closed the corporate office in Vancouver, BC and expect that this will be less of an issue in future periods with the full impact of the savings being realized in the third quarter of fiscal 2017.

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- Our banks have imposed restrictions that currently prevent us from transferring funds from Copper Alloys to our other segments. During the year ended June 30, 2016, the Company breached certain covenants associated with the line of credit. On January 31, 2017, BMO Harris Bank renewed the line of credit and waived the June 30, 2016 covenant violations. The line of credit was renewed on substantially the same terms as the prior agreement, but the interest rate was increased to one-month LIBOR plus 3.75%.
- Effective July 1, 2016, non-executive directors have agreed to receive the majority of their compensation in common shares until the Company's financial position improves. Furthermore, our CEO has agreed to take part of his compensation in common shares, as described in further detail under *Related Party Transactions*.
- Resource prices, particularly for copper, have a bearing on our manufacturing costs and selling prices, as copper is a large component of most of our products.
- The Company has committed to purchase capital equipment at EMC in the amount of \$847 and \$125 at Copper Alloys. These purchases are expected to be completed within the current fiscal year.
- We may be obliged to incur material expenditures on purchases of property, plant and equipment to maintain our productive capacity or service customers.

We expect that the proceeds from our May 2016 offering will be sufficient to meet our short-term needs, although we may need to raise additional funds to complete our business plan. We may be able to generate additional cash by expanding our bank facilities or through short-term debt, but there can be no assurance that we will be successful in obtaining such funds.

*COMMITMENTS*

At December 31, 2016, we had commitments to lease premises over the next five years with an aggregate payment obligation of \$2,113. We were also committed to raw materials purchases over the next year aggregating \$122.

*RELATED PARTY TRANSACTIONS*

Except as described below, we do not have any contractual relationships with directors or officers other than employment contracts in the ordinary course of business. The employment contracts are not financially material to our business except that our CEO is eligible to receive payment of up to \$200 in the event of a change of control of IBC, if certain conditions are met. In October 2016, we reached a settlement with our vice-president corporate relations and special projects under which he tendered his resignation as an officer and director in exchange for a settlement of C\$119 to be paid in installments over the period ending February 28, 2017.

Our non-executive directors were paid \$36 per year, but in October 2012, agreed to temporarily reduce annual director compensation to \$18 as part of a broader initiative to reduce overhead expenses. In fiscal 2017, the non-executive directors' compensation was returned to \$36 per year but the directors agreed to receive the bulk of this amount in common shares. In December 2016, we issued 52,927 common shares to our directors as partial payment for services rendered for the quarter ended September 30, 2016. The issue date value of these shares was \$23. Mark Smith and Geoff Hampson each received 17,259 common shares and Mike Jarvis received 18,409 common shares. The balance of their director fees was paid in cash.

In the quarter ended March 31, 2016, we borrowed \$225 from our CEO under two promissory notes. We have repaid \$75. The loans are secured by the accounts receivable and inventory of

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our Engineered Materials division and bear interest at an annual rate of 10%. We borrowed a further \$150 from individuals related to our CEO. The loans are secured by the accounts receivable and inventory of our Engineered Materials division and bear interest at an annual rate of 12%.

Our CEO has agreed to be partially compensated in common shares, an arrangement which has been accepted by the TSX Venture Exchange. For the period January 2016 to July 2016, we paid our CEO cash compensation to cover necessary payroll withholdings with the balance to be paid in our common shares. From July 2016 to January 2017, we will pay a combination of cash and shares. The share price used will be the closing price of IBC's common shares on the TSX-V on the last trading day of the month. This arrangement was discontinued after one year and has been replaced by cash compensation, well below market rates. In September 2016, we issued to our CEO 206,681 common shares with an issue-date value of \$104 and in November 2016, we issued to our CEO 23,153 common shares with an issue-date value of \$8 as compensation for services.

As noted above, we entered into an advisory agreement with KMSMITH LLC, a consulting company owned by Mark Smith, a director of the Company, which concluded on December 2016. We have also granted KMSMITH LLC options to purchase up to 907,000 common shares in accordance with our stock option plan at an exercise price of C\$0.375 until May 22, 2021.

*FINANCIAL INSTRUMENTS AND OTHER INSTRUMENTS*

Our activities expose us to a variety of financial risks, including foreign exchange risk, interest rate risk, commodity price risk and credit risk. We do not have a practice of trading derivatives. We attempt to employ a natural hedge for foreign currency by holding funds in the currency in which we expect to spend the monies.

*Foreign Exchange Risk*

While most of our activities are in the United States, we incur corporate administration costs in Canada and raise equity proceeds in Canadian dollars. We manage exchange risk on equity capital by converting expected United States expenditures to United States dollars at the time the money is raised.

*Interest Rate Risk*

Our interest rate risk mainly arises from the interest rate impact on cash and cash equivalents and interest expense on the BMO Harris Bank line of credit. Our term loan has a fixed interest rate and is not exposed to short-term interest rate risk.

*Commodity Price Risk*

Our profitability and long-term viability depend, in large part, on the market prices of copper, aluminum and beryllium. The market prices for metals can be volatile and are affected by factors beyond our control, including the following: global or regional consumption patterns; the supply of, and demand for, these metals; speculative activities; the availability and costs of metal substitutes; expectations for inflation; and political and economic conditions, including interest rates and currency values. We cannot predict the effect of these factors on metal prices. We do not engage in hedging but, where possible, structures selling arrangements in a way that passes commodity price risk through to the customer.

*Credit Risk*

We manage credit risk by trading with recognized creditworthy third parties and by insuring international trade receivables. In addition, we monitor receivable balances with the result that the Company's exposure to bad debt is generally not significant.

We also manage our credit risk by investing surplus cash in low-risk, liquid securities, typically short-term deposits with large financial institutions.

### **Environmental and Occupational Safety Issues**

We melt and machine materials that have the potential, if not controlled and handled appropriately, to have a negative effect on health and the environment. In addition, our operations use materials such as cutting and hydraulic fluids, which have the capacity to cause environmental contamination if left uncontained.

To mitigate these potential risks we:

- employ a full-time health and safety manager to administer and monitor our safety programs;
- employ manufacturing practices to minimize and eliminate dispersal of fumes and dust;
- use trap basins and fluid reservoirs to capture and retrieve possible overages;
- use active exhaust vents/hoods located in equipment areas to capture and filter air;
- regularly schedule assessments and maintenance of in-house ventilation systems;
- require our employees to use appropriate personal protective equipment (respirators, outer garments, gloves, etc.) selected to limit and protect them from any potential exposures;
- conduct beryllium lymphocyte proliferation tests (BeLPT) to determine employees' potential for sensitivity to beryllium prior to possible exposure;
- undertake ongoing air quality monitoring and perform periodic employee health exams as per occupational health guidelines; and
- limit access to areas that may have a potential exposure to beryllium dust particles.

In spite of these procedures, we remain subject to risk in this regard.

As with all industry, we are subject to periodic inspection by state and local safety, health and environmental authorities. If during an inspection a failing was noted in our system, the potential for the temporary or permanent closure of the facilities could exist. If during the periodic employee health screening, an employee displays elevated exposure to metals, it could require us to place the employee on sick leave, which would have the potential to impact both our direct and indirect costs and cause a disruption of production. There is also the potential that an inherent safety or environmental exposure, if uncontrolled, could initialize legal action by employees or neighbors.

To minimize the risks arising from pre-acquisition activities, we commissioned phase one environmental reviews prior to acquiring our copper alloys businesses. It may be possible that environmental problems remain at our facilities that these phase one assessments did not uncover.

### **Shareholders' Equity**

#### *POTENTIAL SHARE ISSUANCE*

Our board and the TSX-V have approved the issuance of 3,333 shares to settle a contingent liability of \$30 with a supplier but we have not yet issued the shares.

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*SHARE CONSOLIDATION*

As described above, we consolidated our share capital on the basis of one post-consolidation common share for every ten pre-consolidation common shares. We previously had 98,085,813 common shares issued and outstanding and had 9,808,492 common shares issued and outstanding on completion of the consolidation, after adjusting for rounding. All share and per-share amounts have been restated to reflect the effect of the consolidation.

*SHARE ISSUANCE*

In September 2016, we issued to our CEO 206,681 common shares with an issue-date value of \$104 and in November 2016, we issued to our CEO 23,153 common shares with an issue-date value of \$8 as compensation for services.

In December 2016, we issued to our directors 52,927 common shares with an issue-date value of \$23 as compensation for services.

*OUTSTANDING SHARE DATA*

As at the date of this MD&A, we have issued:

- A total of 30,214,923 common shares. In addition, we plan to issue 3,333 common shares to settle a contingent liability to a supplier.
- Warrants to purchase 22,015,070 common shares.
- Share options to purchase 2,375,000 common shares.

The maximum number of shares potentially issuable is therefore 54,604,993.