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## **CFOAM Limited - Operational Update December 2016**

### **Highlights:**

- **Significant capital improvements underway with expected completion by early Q1-2017**
- **Material improvement in yield, quality, logistics and fully-loaded production costs**
- **Annual production capability at current site can grow to +30,000 ft<sup>3</sup> per annum**
- **US Navy on-site final testing, validation and design phase successfully completed**
- **New markets identified to be major value drivers in 2017, and beyond**

**Triadelphia, WV, USA** By way of brief background, CFOAM Limited (**CFO**) was admitted to the official list of the ASX on 24 October 2016. CFO, through its wholly owned US subsidiary, Carbon Innovations, LLC (**CIL**), assumed operational control and oversight of the CFOAM<sup>®</sup> production platform in July 2016.

During this period, prior to taking full legal control on 22 October 2016, CFO completed multiple pivotal operational tasks including:

- significant de-bottlenecking of key areas of the CFOAM<sup>®</sup> production process,
- important re-start repairs and identification of key, major maintenance programs,
- manufacturing and inventory build out of the CFOAM<sup>®</sup> 30 product line,
- optimization of the entire production platform process - which dramatically increased production run yields/reduced production run times, markedly reduced direct production costs and improved end-product quality and consistency.

Sales and marketing of the full array of CFOAM<sup>®</sup> product lines commenced when full legal ownership of the core business was realized on 22 October 2016.

### **Platform Commercialisation Progress**

Immediate near-term objectives include the full commercialization of the manufacturing platform and developing a proven and dedicated sales and marketing team. CFO management have already identified key personnel and expect to make strategic hires in early-2017 to increase global awareness of CFOAM<sup>®</sup> products, and meet the array of current customer opportunities. The primary platform objective is to transition CFOAM<sup>®</sup> from essentially what has been a specialized R&D enterprise to a highly profit-oriented and growth-centric business platform.

CFO management have already invested capital towards specifically targeted areas of the manufacturing platform, and as referred to above, the results of this capital injection have had a high impact and have yielded measurably positive outcomes to date:

- Major reactor vessel repairs and upgrades have already been performed;
- Additional, redesigned billet racks and feedstock trays have been purchased; and
- A new, upgraded milling machine has been sourced and ordered.

Some immediately realized key platform highlights that have been achieved directly from these capital expenditure projects are:

- While the budgeted Year 1 annual production target was 10,000 ft<sup>3</sup>, CFO met, or exceeded, this annualized production rate for three consecutive months (August to October 2016). This was achieved *prior to* formal legal ownership of the research and development business
- Current CFOAM<sup>®</sup> output now stands *at approximately 12,000 ft<sup>3</sup> per annum*, and is *increasing* commensurate with sales and market demand of the CFOAM<sup>®</sup> product
- The continuous improvement programs already implemented and discussed above have achieved *realized* gains of *over 20%* in both CFOAM<sup>®</sup> yield and quality of foam billets produced

The current manufacturing facility has, conservatively, the capability of expanding and growing CFOAM<sup>®</sup> annual capacity output to approximately 30,000 ft<sup>3</sup> at the current site.

### **Sales and Marketing Activities**

CFO will focus the initial marketing efforts on three core product lines:

- CFOAM<sup>®</sup> 20 – low density, fire resistant, insulating, energy absorbing foam products
- CFOAM<sup>®</sup> 30 – mid-density, fire resistant, insulating, energy absorbing foam products
- Graphitized foam products – suitable for high thermal conductivity applications

CFO currently has sales enquiries, programs, licensing discussions and quotations out, for multiple applications, with multiple customers, including, but not limited to, composite tooling, energy absorption applications, replacement of legacy materials in multiple sectors (such as metal alloys, fibro-composites etc.), and fire resistance programs – e.g. CFOAM<sup>®</sup> joiner panels to be used in rail, automotive, commercial/residential property, and ship building applications.

#### *Aerospace Composite Tooling*

CFOAM's<sup>®</sup> high strength, low thermal expansion coefficient, light weight and lower cost make it ideal for use in aerospace mould tools. Current customers and key commercial opportunities include Northrup Grumman, Boeing Company, Coast Composites, Janicki Industries, Airbus Group, Virgin Galactic and others.

#### *Energy Absorbing, Fire Resistance Applications*

CFOAM's<sup>®</sup> high compressive strength, light weight/low density, fire resistance, insulating properties and energy absorbing properties make it ideally suited to a number of these applications.

CFOAM® has undergone extensive testing and validation by the US Defense Department and its contractors. Discussions are ongoing, and customer testing is underway to use CFOAM® for fire resistant panels in rail car flooring and joiner wall/ceiling panels in both housing (safe room applications) and vessel marine applications. Additionally, above ground rail car applications for potential universal use in the USA and Europe are also being tested. Material changes to specific safety standards and codes which govern rail carriage and transport in the US could materially increase the requirement to utilize CFOAM® as a direct replacement for incumbent materials which will no longer meet the minimum burn time thresholds of current materials.

#### Defense Related Applications

Extensive research, validation testing and proving of CFOAM® has been conducted through the US Government's SBIR program. Further, the recent Presidential election result in the US is expected to have a lasting and dramatic impact on defense spending, and specific programs to upgrade or proliferate current defense programs and systems. Some of these positive changes will directly, or indirectly, impact potential CFOAM® demand as both a superior material for retrofit/replacement or as a key supply material for new programs.

Current programs and discussions are ongoing with major counterparties including:

- Huntington Ingalls
- US Navy
- Northrop Grumman

With reference to CFO's key, current program with the US Navy i.e. the uptake exhaust stack replacement program affecting some of the Navy's most important strategic vessels - CFOAM® use will significantly reduce manufacturing costs, essentially eliminate ongoing maintenance/replacement requirements and achieve dramatic weight reduction versus the incumbent materials used in existing vessel uptake exhausts systems. Recent critical accomplishments with this program include:

- Successful on-site testing completion of full diameter CFOAM® stack segment;
- Design of next testing phase for installation on selected vessel(s) (target Q1-17);
- Establishment of a committee to define and quantify the immediate, and longer-term, US Navy program requirements and their impact on production measures to meet the material quantity of CFOAM® required to meet the demands of the program.

#### PFOAM - New Product Line

CFO expects to finalize and sign a license agreement later this month giving it access to 10 patents and intellectual property related to the production a graphitized/densified carbon foam product. This product, produced from a *mesophase pitch* feedstock, has thermal conductivity properties greater than aluminium and copper. CFO intends to introduce this new product line with the name PFOAM. Currently, CFO controls the manufacturing capability to produce PFOAM at scale, cost and output rate to penetrate already identified markets including LED lighting. Production of PFOAM is planned for Q1 2017. Sales of PFOAM have already been awarded pending execution of the license agreement. Selling price margins are expected to significantly exceed that of other CFOAM® products. This is an extremely exciting and compelling new product line, and one which will independently complement the significant CFOAM® platform.

## Capital Expenditure Projects

Post-IPO, CFO initiated a number of capital projects that were previously identified and discussed in the Prospectus. Projects currently underway and on-going include:

- Design and construction of a new feedstock loading system, reducing both loading cycle time and man-hours required to perform this task.
- Selection, procurement and installation of a new 3-axis, automated milling machine
- Electrical and PLC upgrades reducing production downtime
- Major maintenance repairs to the reactor vessel increasing system availability, and reducing down-time delays between production runs - from +24-hours to < 3-hours
- Additional sets of racks and pans procured, further reducing cycle load time
- Acquisition and installation of storage containers allowing for on-site storage of up to 4,000 ft<sup>3</sup> of finished CFOAM® product

CFO expects to have all projects identified above completed by no later than 31 January 2017.

## Summary

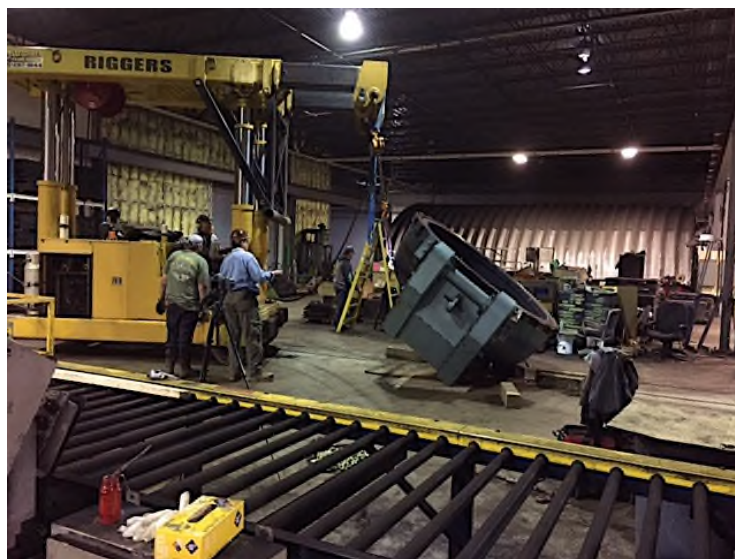
In summary, CFO management has targeted and realized multiple platform and business goals in a matter of weeks. As CFO enters 2017, the efficiency and quality of the total CFOAM® production, logistics and sales businesses is measurably improved, and has been materially optimized to meet the multiple commercial opportunities that the Company is involved with. We look forward to keeping our shareholders abreast of these exciting developments over the coming months.



*Repair work to reactor vessel*



*Repair work to reactor vessel*



*New Feedstock loading bin*

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## About CFOAM Limited

*On 22 October 2016, CFO, through its wholly owned US subsidiary, Carbon Innovations, acquired all production plant equipment, intellectual property (including patents and trademarks), leases, inventory, contracts and infrastructure related to the production of CFOAM®.*

*CFOAM® is an inorganic carbon material that is manufactured from coal, pitch or lignin feedstock. CFOAM® manufactured in this process has a rigid foam structure, similar in appearance to pumice stone, but with entirely different properties. CFOAM® is currently used across a wide variety of markets including composite tooling for the aerospace sector, energy absorbing applications and defence applications. Additional markets such as the automotive applications for energy absorption and fire resistance are also expected become significant to the Company over time.*

*CFOAM® was developed to meet the growing demand for ultra-high end performance engineering materials in the, industrial, aerospace, military and commercial product markets.*

### Important Notice

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