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3 March 2006

The Secretary Foreign Affairs, Defence and Trade References Committee Suite SG.57 Parliament House Canberra ACT 2600

Attention: Dr. Kathleen Dermody Committee Secretary

### Subject: Inquiry into the Scope and Opportunities for Naval Shipbuilding

Attachment: G&C/041(E-KEM-5000), Response to Foreign Affairs, Defence and Trade References Committee Inquiry into Naval Shipbuilding in Australia, dated 3 March 2006

Dear Dr. Dermody:

We are pleased to have this opportunity to respond to your letter dated 10 February 2006, inviting Gibbs & Cox, Inc. to provide you with input regarding the Committee's inquiry into the future of Australia's naval shipbuilding industry. Gibbs & Cox, Inc. is an independent naval architectural firm headquartered in the United States. We have recently established a wholly owned subsidiary, Gibbs & Cox Australia, Pty Ltd in Adelaide. Our submission, which is provided as an attachment to this letter, is centered on our experience in the ship design segment of the Australian shipbuilding industry, where we have participated on various Naval projects for over 30 years, including our current role as platform system designer for the Air Warfare Destroyer Project.

If you have any additional questions or need additional information, please feel free to contact either Mr. Peter Croser, Managing Director of Gibbs & Cox Australia, Pty Ltd or me.

We appreciate you interest in our input to your inquiry.

Very truly yours,

Kevin Moak

KEVIN MOAK CHAIRMAN



3 March 2006

# <u>Response to Foreign Affairs, Defence and Trade References Committee Inquiry into</u> <u>Naval Shipbuilding in Australia</u>

Gibbs & Cox, Inc. is pleased to have the opportunity to provide a written submission to the Foreign Affairs, Defence and Trade References Committee regarding the request to provide input into the ongoing inquiry into naval shipbuilding in Australia.

Gibbs & Cox, Inc. is an independent naval architectural firm who has recently been selected as the platform system designer for the Air Warfare Destroyer Project. We have also recently established a wholly owned subsidiary, Gibbs & Cox Australia Pty Ltd (GCA) in Adelaide which indicates our confidence in the further development of the Australian Ship Design and Build sector in meeting the future program demand of the Australian Department of Defence. We have supported various Commonwealth surface combatant shipbuilding and modernization programs for over 30 years. Our response to the Committee's inquiry reflects our expertise, our experience in Australia and, in particular, our plans for supporting the AWD Project and future shipbuild and modification programs.

Our response is structured to first provide a brief overview of Gibbs & Cox, Inc. This is followed by our response to the questions in the order presented in the inquiry. Given the short timeframe to respond to the inquiry, and giving consideration of the proprietary nature of the market place, we have limited our response to a qualitative statement on our understanding of the naval ship engineering and design sector of the shipbuilding industry in Australia. We would be pleased for this submission to be available publicly at the discretion of the committee.

# Gibbs & Cox, Inc.:

Gibbs & Cox, Inc. is an independent naval architectural, marine engineering and professional services firm. The firm was incorporated in 1929 and has been continuously providing a full range of design, engineering, management and support services to the Australian, U.S. and other international navies, shipbuilders, and commercial clients.

Since 1933, the firm has, with one exception, designed every U.S. Navy destroyer in service, including the DDG 51Class. We have been responsible for the design of nearly 200 naval vessels now in service or under contract worldwide, and over 60% of the U.S. Navy's current surface combatant fleet. Included in these are the designs of the U.S. Navy's DDG 51 Class AEGIS Guided Missile Destroyers and the FFG 7 Class Guided Missile Frigates, six of which are in service in the Royal Australian Navy (RAN). Gibbs & Cox, Inc. also provides a broad spectrum of support to government and industry ship design teams, as well as supporting ongoing research and development activities and life cycle programs.



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Gibbs & Cox, Inc. has supported the Commonwealth for over thirty years. Over this period, we have cumulatively performed over \$70 Million (AUD) of effort in total contract value. As noted, we are the platform system designer for the AWD Project. We were Class Design Agent for the FFG 01 Class frigates, the Class Design Agent for the frigate program (FFGs 05 and 06) and the Platform System Design Authority (PSDA) for ADI on the FFG upgrade program. The firm was also the original ship designer for the Perth Class (ex-DDG 38 Class destroyers), which were in service in the RAN until recently. We provided design support to the Commonwealth to assist in the assessment of the ANZAC Warfighting Improvement Program (WIP), as well as technical assessments for the consideration of transferring U.S. Navy DDG 993 Class destroyers to Australia. The firm has also supported the Commonwealth in the fleet-wide shock inspection and testing program. We also provided input to the Commonwealth's future ship commonality (ATC) program.

Gibbs & Cox, Inc. has supported the U.S. Navy for over seventy years. We were the Lead Ship Design Agent for the DDG 51 Class AEGIS Guided Missile Destroyer. We are currently the DDG 51 Class flight upgrade engineering contractor to the U.S. Navy. Under this contract, we are providing engineering support directly to the U.S. Navy's PEO Ships to evaluate proposed design upgrades and changes to the Class, as well as troubleshoot technical problems that arise during construction and operation. In this role, we developed an extensive series of upgrade alternatives for the DDG 51 Class, including the addition of helicopter facilities (incorporated in Flight IIA), additional VLS (Vertical Launch Systems) cells, advanced gun systems, minehunting capability and electric drive. In addition to our support directly to the U.S. Navy, we were also the class design subcontractor to Bath Iron Works for the follow-on ships of the class, where we supported their integrated teams developing the detail design of the follow-on ships of the class. Throughout our involvement with the DDG 51 Class Program, we have worked closely with Lockheed Martin to integrate the AEGIS combat system, and its upgrades, including SPY-1D(V), into the Class.

We are currently teamed with Lockheed Martin, Marinette Marine, and Bollinger Shipyards for the Littoral Combat Ship (LCS) design and construction program. In May 2004, our Team was selected to design and build the first of the class of Flight 0 LCS ships. We are currently developing the detail design of the ship. Construction began in February 2005 and the ship will be launched in March 2006.

We have also been a member of large industry teams designing the next generation of advanced surface combatants for the U.S. Navy, including the Arsenal Ship, SC 21 Surface Combatant, DD 21/DDX Land Attack Platform, as well as the USN and USCG (U.S. Coast Guard), Deepwater Program. We are also active in the international frigate and destroyer market. The firm has supported recent frigate and destroyer programs in Australia, Spain, Taiwan, Korea and Turkey, and is actively pursuing programs worldwide.





### **Response to Specific Committee Questions**

As noted above, our response is structured to respond to the questions in the order presented in the inquiry.

# (A) <u>The capacity of Australian industry base to construct large Naval vessels over</u> <u>the long term and on a sustainable basis</u>

Currently there exists an established industrial base in Australia experienced in the detail design and construction of surface combatants. Much of this base resides within the Australian shipbuilders, small, medium and large independent design firms, and Commonwealth design and research authorities. This base has recent experience in the design of the Collins Class submarines, the ANZAC Class frigates and the modernization of the Adelaide Class frigates.

We are participating in this industrial base through our wholly owned subsidiary, GCA (Gibbs & Cox Australia Pty Ltd). GCA is our in-country design office and our liaison office with the AWD Team. We are staffing it with a mix of existing Gibbs & Cox, Inc. employees and permanent, new hire, Australian employees. Our goal is to staff GCA to sustain whole of life support to the AWD Project, and use reach back to our other offices, and our Australian and international partners and subcontractors to provide specialized services and meet program manning surges.

During peak work periods, our plan is to augment our GCA workload by giving priority to our AWD Team members, ASC Shipbuilding and Raytheon Australia, as well as selected design and specialist firms in Australia. We believe this approach, supplemented with reach back to engineering and design resources at Gibbs & Cox, Inc. and our other AWD Team member General Dynamics-Bath Iron Works, will provide us with an adequate capacity to develop the AWD design, while allowing for the sustainment of critical capabilities through the life cycle of the ships.

Our approach to integrating into the Australian industrial base consists of a number of activities, including:

- Hire experienced senior managerial staff to manage the Australian operations of GCA and coordinate reach back to Gibbs & Cox, Inc.
- Hire qualified Australian engineers and designers to staff GCA.
- Partner with Commonwealth design and research agencies, such as DSTO, to provide expertise in key design specialties and facilities (e.g. model test facilities).
- Establish working agreements with leading independent Australian professional services firms and SMEs. Subcontract a percentage of the work assigned to Gibbs



& Cox, Inc. directly to other qualified Australian design and engineering firms to meet capacity and expertise demand.

- Subcontract to Australian firms in specialized areas, such as safety and environmental compliance, where their unique knowledge of Australian issues and practice will assure the design complies with required Australian policy and law.
- Conduct formal and on-the-job training and technology transfer throughout the design development.
- Work closely with the AWD Team to specify, where possible; Australian equipment and systems. This be a major and critical factor in the Australian industry involvement in the AWD Project and will maximize the commonality of systems and suppliers within the RAN Fleet
- Hire staff that have Commonwealth security clearances based on prior work. We assume that a significant number of the defence workforce have experience from other defence programs and associated clearances. We believe this will facilitate using them for the AWD Project.

We have also used industry groups, such as ICN and the Australian Industry & Defence network, to help us identify qualified Australian industry defence firms. We are aggressively meeting with these firms to express our interest in considering them as potential subcontractors and suppliers in support of these goals.

This is a robust model for the growth of the specific Australian Industrial base of ship systems design in a sector which traditionally has been "thin" and will be critical to the future support of this and other programs.

### (B) <u>The comparative economic productivity of the Australian shipbuilding base and</u> <u>associated activity with other shipbuilding nations</u>

Our experience is that the productivity of engineering and design sector of the Australian military shipbuilding base is comparable to that of Northern Europe or the United States. Many companies in this sector are either partially owned by international companies (e.g. Thales ownership of ADI) or are partnered with international companies (e.g. General Dynamics-Bath Iron Works relationship with ASC). In both instances, the international partners provide technology transfer to their Australian partners. This includes processes and procedures, design tools, and analytical methods.

We also believe that the quality of the defence design and engineering workforce is comparable to that of Northern Europe or the United States. The quality of Australian Universities is world class. In addition, many of the workforce have been educated in Europe or the United States. Many in the workforce also have relevant and recent experience in either Australian combatant programs or international naval ship design/building programs.



We also believe that the costs of the Australian design and engineering workforce is comparable to Northern Europe or the United States. In establishing GCA we have conducted a number of salary surveys and have begun hiring staff using rates that are competitive in the world defence market.

One issue we are currently assessing is the immediate availability of sufficient experienced naval ship design engineers and designers, especially those with security clearances to support near-term needs. With the robust mining industry and healthy economy in Australia there is a strong demand for engineers and designers. We understand that to meet this demand, industry is reaching out to international labor markets. While this may be adequate for commercial entities, it can be an issue for the defence industry, where national security is a major concern. In addition, on programs requiring the export of data from the United States or other countries to Australia, prospective employees need to satisfy security requirements for both Australia and the exporting country. The specific U.S. requirements for ITAR controls have an impact on who can be hired and impose additional obligations that must be met by Australian and US companies operating in Australia.

We do not believe this will be a long term issue, since over time, we can apply for and receive clearances for qualified workers. We are also very experienced with the ITAR requirements. Since we have only recently begun hiring for GCA, we do not have sufficient data to determine if the security clearance requirements will be an issue. In the meantime, we can use reach back to our parent company and our partners to staff our immediate needs, while working on the long term solution.

### (C) <u>The comparative economic costs of maintaining, repairing and refitting large</u> <u>naval vessels throughout their useful lives when constructed in Australia vice</u> <u>overseas</u>

We understand the importance to the Commonwealth of retaining and sustaining critical contract and detail design capabilities and capacities. These key industry skill sets are essential not only for construction of new platforms, but also for the whole of life support of the fleet. It is an element of national security as well as being a more fleet and systems wide cost effective methodology to have the ability to maintain, repair and modernize the ships in Australia through their operational life.

The comparative economic value of designing and building the ships in Australia versus overseas is centered on the fact that in designing the ships in Australia, the Commonwealth will have:

• Full access to the design and associated intellectual property in country and have control over its modification and refresh



- Control over the pedigree of the design and the amount of life cycle cost savings incorporated in the up front design
- Established a design entity who developed the design and can maintain the corporate memory on the design
- Established an industry design/build team that can maintain the ships through the life of the ships
- Established a review/certification/approval regime using independent approval agencies (such as Lloyds Register on the AWD Project) to augment government capabilities through the life of the ships

To realize the full economic value of this approach, the Commonwealth will want to provide sufficient follow-on work to the key industry partners to allow them to sustain their capabilities over time. This will be to the benefit of Australia, the industry and in particular to the end-user the Royal Australian Navy through the avenues of the Defence Materiel Organisation (DMO) and the Capability Development Group to meet that future demand.

# (D) <u>The broader economic development and associated benefits accrued from</u> <u>undertaking the construction of large naval vessels.</u>

We believe a number of export opportunities will evolve from the AWD Project. The three principal areas are direct marketing of the AWD design and subsets, sustainment of an integrated ship design and construction capability in Australia, and export opportunities that arise though the relationships developed between the our Australian industrial) partners and U.S. participants on the AWD Project. The SEA AWD will be a modern state-of-the-art, flexible, multi mission combatant. It will be more modern than the current European designs, and will be a more affordable alternative compared to a U.S. Navy variant or future combatant. It will be an attractive design for many countries that have interest in large combatants, such as Canada, Saudi Arabia, Chile, Turkey and Greece. The same attributes that made the AWD attractive to Australia, make it attractive to the world market. It is our intent to negotiate with the Commonwealth use of our design for international marketing. We also offer to aggressively market the design with the Commonwealth, our GCA offices, and our AWD Team partners. The AWD Project will sustain a robust naval ship design and construction industry in Australia that will be competitive on naval ship programs worldwide.

Gibbs & Cox, Inc. and GCA will actively support teaming opportunities with other Australian industry partners to pursue international combatant ship programs. These include corvette programs throughout the Pacific Rim and worldwide, where we believe we can offer very capable, cost competitive designs, especially given Gibbs & Cox, Inc.'s ongoing involvement on the U.S. Navy's LCS Program. One of the major benefits to Australian industry under the AWD Project will be the close association with the U.S. companies that will be involved on the program, all of whom are active in the U.S. Navy



and other markets. As noted earlier, we plan to partner our U.S. companies with Australian counterparts. This will allow our Australian industry partners to investigate teaming and bidding opportunities with their counterparts. It will also provide an opportunity for our Australian industry partners to enter the U.S. defence market.

Gibbs & Cox, Inc. have invested significant time and money in the development of an Australian indigenous capability that has a depth of capability that will support the RAN and the DMO for many years to come. The growth of the Australian company GCA is rapid and is being implemented under the premise that we will have a significant role to play in the AWD and other Naval programs. This level of commitment shows the high degree of cooperation that exists between the Australian and U.S. Governments and their associated industries. We are confident that this will give Australia the ability to both sustain its own capability requirements and to use that capability in the national interests and to further develop exports and so doing build relationships with U.S. and international companies that will create opportunity for robust, competitive and efficient Australian Companies.

### **Contact points:**

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