SHIP PRODUCTION COMMITTEE
FACILITIES AND ENVIRONMENTAL EFFECTS
SURFACE PREPARATION AND COATINGS
DESIGN/PRODUCTION INTEGRATION
HUMAN RESOURCE INNOVATION
MARINE INDUSTRY STANDARDS
WELDING
INDUSTRIAL ENGINEERING
EDUCATION AND TRAINING

August 1990
NSRP 0320

THE NATIONAL SHIPBUILDING RESEARCH PROGRAM

1990 Ship Production Symposium

Paper No. 2A-1: Acquisition of Ten ANZAC Frigates

U.S. DEPARTMENT OF THE NAVY
CARDEROCK DIVISION,
NAVAL SURFACE WARFARE CENTER

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
AUG 1990	**N/A**	**-**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
The National Shipbuilding Research Program, 1990 Ship Production Symposium, Paper No. 2A-1: Acquisition of Ten ANZAC Frigates	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Naval Surface Warfare Center CD Code 2230-Design Integration Tools Bldg 192, Room 128 9500 MacArthur Blvd, Bethesda, MD 20817-5700**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release, distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**SAR**	**11**	

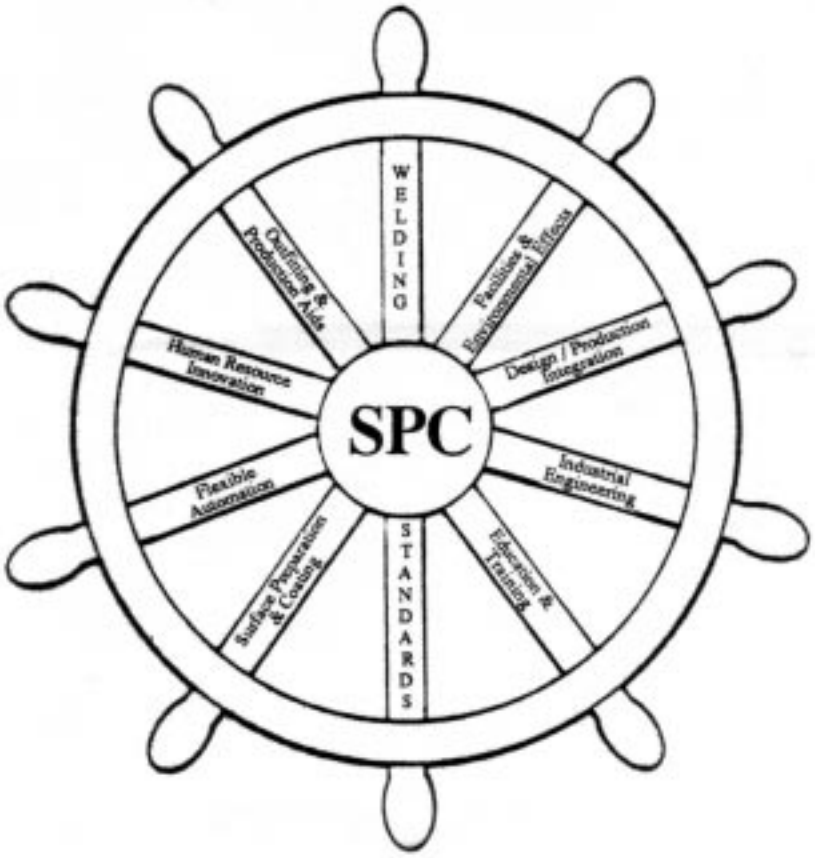
DISCLAIMER

These reports were prepared as an account of government-sponsored work. Neither the United States, nor the United States Navy, nor any person acting on behalf of the United States Navy (A) makes any warranty or representation, expressed or implied, with respect to the accuracy, completeness or usefulness of the information contained in this report/ manual, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately owned rights; or (B) assumes any liabilities with respect to the use of or for damages resulting from the use of any information, apparatus, method, or process disclosed in the report. As used in the above, “Persons acting on behalf of the United States Navy” includes any employee, contractor, or subcontractor to the contractor of the United States Navy to the extent that such employee, contractor, or subcontractor to the contractor prepares, handles, or distributes, or provides access to any information pursuant to his employment or contract or subcontract to the contractor with the United States Navy. ANY POSSIBLE IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR PURPOSE ARE SPECIFICALLY DISCLAIMED.

THE NATIONAL SHIPBUILDING RESEARCH PROGRAM'S

1990 SHIP PRODUCTION SYMPOSIUM

Preparing for the 21st Century: Focusing on Productivity and Quality Management



August 22-24, 1990
Pfister Hotel
Milwaukee, Wisconsin

SPONSORED BY THE SHIP PRODUCTION COMMITTEE
AND HOSTED BY THE GREAT LAKES AND RIVERS SECTION OF
THE SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS

THE SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS
601 Pavonia Avenue, Jersey City, NJ 07306

Paper presented at the NSRP 1990 Ship Production Symposium,
Pfister Hotel, Milwaukee. Wisconsin, August 21-24.1990

Acquisition of Ten ANZAC Frigates

2A-1

CDRE Peter Dechaineux Ao RAN, Visitor, **Les Jurgens,** Visitor, Department of Defense, Canberra, Australia

ABSTRACT

Australian Marine Engineering Consolidated (AMECON) of WIlliamstown Victoria was awarded a contract in September 1989 to build 10 ANZAC Frigates, 8 for the Royal Australian Navy and 2 for the Royal New Zealand Navy.

The contract and the signing by the Defence Ministers of Australia and New Zealand of an agreement for the construction of the frigates culminated six years of lead-up work but had its genesis on the shores of Gallipoli 75 years ago.

This paper addresses the lead-up activities, including the establishment of a joint project office, Australian and New Zealand Defence Committee involvement, tendering, evaluation and negotiation. The paper also provides an overview of the ship construction techniques and the division of work.

INTRODUCTION

At present Australia's surface combatant fleet consists of three guided missile destroyers (DDG), four guided missile frigates (FFG), five destroyer escorts (DE)) and 20 patrol boats.

In the mid 1980's the Royal Australian Navy (RAN) conceived a project for the introduction of New Surface Combatants to provide a capability to take over from the aging destroyer escorts. The direction of this project was focused in 1986 by a defence review conducted by Mr Paul Dibb, then the Director of the Joint Intelligence Organisation. The review was conducted within the framework of Government policy which required self reliance, a coherent defence strategy and an enhanced defence capability.

The review developed an argument for eight light patrol frigates with the range, speed and seakeeping to operate in Australia's area of direct military interest and beyond. Each ship would be able to carry a helicopter and be fitted with a range of modern sensors and weapons.

Following on from this review the Chief of the Naval Staff, Vice Admiral M.W. Hudson, introduced the concept of three tiers of surface combatants with Tier 1 being represented by the DDGs and FFGs, Tier 2 by the destroyer escorts and Tier 3 by the patrol boats. Hence the New Surface Combatant project was directed at acquiring eight Tier 2 light patrol frigates.

New Zealand's destroyer fleet requires two ships to be replaced in the mid 90's and a further two after the turn of the Century. This New Zealand requirement coincided with Australia thus there was scope for a joint venture which could achieve cost savings and common equipments.

After issue of the Dibb report the Minister for Defence announced that the Government planned to build in Australia: 6 submarines, 8 new surface combatants, mine warfare vessels, survey motor vessels and hydrographic vessels for a total value of over seven billion dollars. He also stated that the industry was to be restructured to ensure this workload is handled efficiently and is properly used as a basis for attaining an internationally competitive standard.

The Australian shipbuilding, ship repair and heavy engineering industries are recovering from years of decline and from a series of world oversupply crises. While considerable progress has been made in the rationalisation and increased efficiency of the industry sectors which produce smaller tourist, fishing and pleasure vessels, the scope and complexity of the larger projects planned will test the competence of many organisations, large and small.

PROJECT DEVELOPMENT

Development of the New Surface Combatant project to contract signing took about 6 years, the first three of which were relatively slow as the project got off the ground and the way ahead was established. Various overseas visits were undertaken to the US and Europe to investigate the ship and weapon market and studies were undertaken to refine the capability requirement.

Risk

Of importance in the process was the determination of risk the Department of Defence was willing to take. Figure 1 is a simplistic portrayal of acquisition risk.

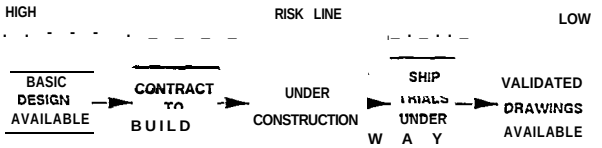


FIGURE 1 ACQUISITION RISK

To construct a ship from a set of validated drawings normally entails a low cost and schedule risk, however such a set of drawings will have taken a long time to produce with the actual design probably being undertaken 6 or 7 years previously with weapons and technological innovations naturally being of that period. At the other end of the scale the design is in the embryo stage and a high risk prevails that the ship will not be delivered on time and to budget.

Complimentary to the risk related to the design status is the risk related to ship construction. To ask an established American or European yard to build a frigate, would have entailed low risk. The same confidence was not felt for a build in Australia.

Australian warshio building is at a comparatively low ebb. The last major ship built was completed 'in 1971. Currently two FFG 7 class frigates are being constructed, but much of the process requiress re-learning of skills not used for many years.

The combination of the two risks, design and construction, required the Department, in order to have an acceptable measure of confidence that the risk could be managed. to look to the acquisition of an 'existing design', for construction in Australia. The definition of an 'existing design' was debated for some months with the 'operators' looking to the inclusion of future weapon technology and the 'production' side of the house advocating the virtues of validated drawings. A compromise was reached and a Request for Proposal (RFP) was issued worldwide with 'existing design' defined as 'one which has been constructed or which is under contract for construction by the date of closure of the RFP'.

Request for proposal.

The Request for Proposals, was issued in Dee 1986. The thrust was to establish the status of the ship offered, the capability of the ship designer/builder to undertake development of the design (noting that some designs did not belong to shipbuilders), the estimated cost for construction and to determine which two designs should be further investigated.

The 22 respondents to the RFP were:

Blohm and Voss - MEKO 200P class frigate;
Bremer Vulkan - F122 class frigate;
Flncantieri - Maestrale class frigate;
Hyundi - HDF 2000 class frigate;
Pronav France - F 2000 class frigate;
Royal Schelde - M Frigate (together with a less capable/complex Modified M Frigate);
St John Shipbuilding - Canadian Patrol Frigate;
Swan Hunter - Type 23 class frigate;
Vosper Thornycroft - Mode rnised Leander class frigate;
Yarrows - Type 23 class frigate;
Unisys Corporation - FFG 7 class frigate;
BMV Engineering - Nordkapp coastguard vessel;
Bond Cornoration - Airship Sentinel Design:
PEAB - Alternative combat system for F122 frigate offered by Bremer Vulkan and Type 23 offered by Yarrows; -
Rockwell International - Assistance in commonality studies;
Boelwerf - Wielingen class frigate;
Bremer Vulcan - Reduced F122 (not an existing design)
Yarrow Shipbuilding - Mini 23 (not an existing design)
Hall Russell Proposal for Frigate design (not an existing design).

The assessment of the responses was underway when New Zealand joined the project. In late 1986 and early 1987 there was discussion between the two countries at both Departmental and Ministerial level, the outcome of these discussions being a Memorandum of Understanding signed by the two Ministers which provided for, among other things, consultation on the design, construction in Australia, a joint project office, finance on a pro rata basis for project office activities and comprehensive disclosure of relevant information between the two parties.

At the same time, the project was named the ANZAC Ship Project in recognition of the bond established between the two countries at the landing of the Australian and New Zealand Army Corps at Gallipoli in 1915. The name ANZAC has a proud tradition in both Australia and New Zealand and is most fitting for this joint project.

The project office was expanded to include New Zealand personnel both service and civilian in the team, including a civilian engineer as Deputy Project Director. New Zealand capability requirements were assessed to identify differences from the Australian requirements and a start was made on the financial sharing arrangements.

There were some differences in the Capability requirements between Australia and New Zealand. For-example New Zealand had a requirement to fit-for-but-not-with a relatively large towed array system. This system's physical size presented major problems at the aft end of some of the proposed designs. However in these early davs neither Navy had fully firmed up on particular weapon configurations so there was room to manoeuvre during assessment of the RFP responses.

After assessment and consideration by both Australian and New Zealand source definition committees it was decided to ask Blohm and Voss (Meko 200), Royal Schelde (M Frigate) and Yarrow (Mini Type 23) to further develop their proposals. These three would be later reduced to two.

Invitation to Register Interest.

As the RFP process was underway an lnvittation to Register Interest (ITR) in the construction of the ships was issued to Australian Industry.

The ITR was structured in a way that would encourage the formation of strong consortia with financial strength, with the ability to act as Prime Contractors for the construction of the ships and to provide appropritate facilities and a comprehensive range of logistic support. The involvement of an electronics/weapons firm was also encouraged through discussion with industry.

Three significant issues emerged from the ITR which dominated the selection of the two consortia to receive RFTs. These were:

a. availability of suitable facilities;

b. involvement of the overseas Designer/Weapons House; and,

C. shipbuilding experience.

There was a general problem with existing facilities which affected all respondents to a greater or lesser degree. A stipulation in the ITR called for no significant upgrading of existing facilities at Commonwealth expense.

There seemed to be little doubt that for a single-stream ship COntraCt, major facility expenditure would be needed at all venues other than at Williamstown Naval Dockvard where the FFGs were being buift. Even at Williamstown there was some doubt that the ANZAC ships could by produced in the timescale and at the required rate without an upgrade of the facilities, not to mention technical management resources. At that time Williamstown Naval Dockyard was in the process of being sold and a number of the ITR respondents were banking on obtaining the dockyard as their facility. Others proposed a green field site.

The responses showed that for sites other than Williamstown substantial upgrading would be required. All respondents proposed such investment: . some indicating that the upgrading would be undertaken on a commercial basis, regardless of winning the ANZAC contract, whilst other suggested that costs would be recouped by the expected improvements in productivity.

Whilst the ANZAC contract would undoubtedly dwarf any other contract held or gained by the winning yard for the foreseeable future, there is no doubt that the cost of upgrading would fall to the Commonwealth regardless of whether that cost appeared as a specific line item in the tendered price or whether it was subsumed in the total price. The question of whether or not the costs of upgrade could be justified depended upon several factors. One of those was the opportunity to amortise facility costs over a considerable number of ships. This is one of the strengths of the ANZAC program - the large number of ships Will enable considerable investment costs to be amortised.

The two consortia selected as a result of the ITR process were Australian Marine Engineering Consolidated (AMECON) and Australian Warships Systems (AWS). These two consortia had to wait until the Department selected two of the three designs before they could combine with the designers.

The strategy adopted was to ask each of the building consortia to combine with a designer. This resulted in two powerful groups, each having its own builder and designer and each having sufficient strength to equally compete for the contract.

Design Development Contract.

The three desianers were tasked with expanding on their technical and cost proposals. On the technical side modification of the designs were investigated to accommodate special Australian/New-Zealand requirements and variations in cost were looked at for different weapon configurations and ship delivery rates.

There were advantages and disadvantages related to each of the three final proposals. There was little to choose between the three, however on balance the Blohm and Voss MEKO 200 and the Royal Schelde M Frigate were preferred as the two designs to go forward to the next phase. Both designs were assessed as being acceptable to the Navy.

There had been discussions between the two shipbuilding consortia and the three designers while the selection process for the two designs was underway; therefore on announcement by the Government of the two successful designers it did not take long for the final combination to be settled. AWS joined with Royal Schelde and AMECON with Blohm and Voss.

Request for Tender.

Although the ITR and RFP were important preliminary documents the Request For Tender (RFT) for the Prime Contract was the vehicle that implemented the strategy and accorded with Government policy to develop two centres of concentration of major naval shipbuilding and with Defence aspirations on shipbuilding techniques, technology transfer, logistic support and industry involvement.

Because of the extent of the work required to provide tender information the Department awarded a design development contract to each tenderer. This contract covered the provision of a range of information which could be rolled into the tenders for consideration during the evaluation.

Of significance in the tender and development contract deliverables were the build strategy, Australianisation, technology transfer, logistic support and cost/schedule management.

Another strategy utilised was to divulge the unit ship price which the Government was prepared to meet. This had the effect of keeping a lid on the project cost and demanded that the tenderers look very closely at the equipment to be offered and the existing build strategy to see where cost cutting changes could be introduced. Coupled with this was the Governments desire to spread the work around Australia and New Zealand.

In order to try and steer both consortia down a track that could have significant cost savings the Production Branch of Navy invited Mr. Lou Chirillo of Chirillo Associates to Australia to present to both the Department and the tenderers the latest techniques in ship construction. These presentations provided the necessary incentives for the tenderers to embody advanced construction techniques, thus the cost per ship became achievable and ways emerged to spread the work throughout Australia and New Zealand.

The Australianisation of the design and the manufacture in country of a percentage of the high tech weapon, communications and computing equipment was designed to provide technology transfer. The RFT was specifically designed to ensure that the tenderers' proposals could be accurately assessed both for the percentage of Australian/New Zealand content and the technology value of that content.

The effectiveness of Australia's armed forces depends to a significant extent upon maintaining a sufficiently high level of technology in critical capabilities. This includes the ability to acquire, operate and support advanced military equipment. High technology equipment offers potential for increased capabilities and reduced manpower requirements. However acquiring high technology equipment is not an end in itself, there is a need for indigenous Australian development, drawing on overseas experience where appropriate. Intelligence, surveillance and sensor equipment together with associated command and control systems have priority for local technology development because they need to be tailored to the local requirement. Australia's capacity in the operation, modification and maintenance of advanced equipment is relevant to the regional military situation and self-reliance. It is particularly important that advanced technology equipment should be supportable from local resources.

A critical area of support is electronics, particularly the software needed to support modem weapon systems. Australian industry is currently increasing expertise in this advanced technology area. The logistic support requirement also includes the production in Australia of high usage spares and ammunition where the cost penalty is not excessive.

The RFT also required the tenderers to show the level of Australia's design resources which would be used not only in design changes but also in the support area. Both tenderers being required to employ Australian design personnel, including Defence designers in the overseas design location as well as setting up a local design capability.

Integrated Logistic Support (ILS) is usually a very significant element of project cost. The ANZAC ship project is no exception. When looking at project costs it' is 'very j easy to 'save' money by cutting ILS costs. There is no immediate affect on the project, in fact the project may never be affected because by the time a problem occurs due to the cost cutting the ship is out of project hands and the operators have to solve the problem and pick up the tab. To spend money in the early part of a project to set up a solid support base saves money in the longer term.

With an all up cost of A$3500m contemplated and a requirement that a high percentage was Spent in Australia/New Zealand it was imperative that an efficient cost and schedule management system was used by the successful tenderer. Some form of control was required to not only ensure that the shipbuilder has his house 'in order but also that all of the major sub-contractors reported their performance in a common format.

The cost/schedule control requirements of the US DoD Instruction 7000.2 were imposed on the Prime Contractor and on major in-country sub-contractors. For overseas major sub-contractors a form of cost/schedule status reporting to US DoD Instruction 7000.10 was required. Both of these instructions are widely used in the US and will not be described here.

In order to ensure that the total contract was correctly defined the Department devised a Contract Definition and Monitoring System (CDAMS). CDAMS is designed to provide to the Department a full contract definition of scope and price, monitoring of progress and the means for the contractor to claim payment against achieved progress based on the structure of the Cost/Schedule Control System. CDAMS also provides listings of such aspects as Australian and New Zealand industry involvement, offsets, foreign currency and vesting.

One of the principal reasons for developing CDAMS was that the contract is on a variable price basis (allows variation for exchange rate and escalation). CDAMS allows the client to monitor price rather than cost. Of fundamental importance is that CDAMS defines the data base which is then used in the Contractors Cost/Schedule Control System. This single data base is the source of all reports and forms the complete' definition of the work to be performed during the contract.

Evaluation.

The tenders closed in January 1989 and the evaluation process got underway. It was imperative that probity not only be maintained but also that it be seen to be maintained. In addition there was the requirement to ensure that both Australia and New Zealand officers were involved in each of the evaluation teams.

There were six evaluation teams covering:

Operation and Design

Organisation, Management and Production

Integrated Logistic Support

ANZ Industrial Involvement

Financial and

Contractual

Each team developed its own Work Breakdown Structure (WBS) for the evaluation task. The Organisation Management and Production team had six groups in its structure at level 2. An abbreviated WBS is shown at Figure 2.

Each Team produced its own report for Defence committee considerations. The Defence Source Definition Committee (DSDC) was expanded to include New Zealand officers, thus although New Zealand has an equivalent committee and each team report was presented to each committee, the expanded DSDC carried the principal responsibility for evaluation and for determining the procedures to be adopted for requesting final offers.

Negotiations.

As the DSDC was deliberating, negotiations were started with each of the two tenderers.

During this period members of the DSDC visited each of the consortia for discussions and viewing the facilities. This enabled committee members who were not familiar with shipyard operations to come to grips with the evaluation task. The negotiations covered each term and condition of the proposed contract. Working groups were set up to investigate contentious issues and to look into the various options proposed by the tenderers and the Department.

Best and Final Offer.

Near the end of the negotiations and DSDC deliberations the tenderers were asked for their Best and Final Offers (BAFO). These offers were based on the negotiated agreements reached over the previous weeks and a defined ship configuration. Deliberate and extreme care was taken to ensure that no one 'moved the goalposts'. Receipt of the BAFO's started a new round of evaluations. This time however the principals of each of the evaluation teams undertook the majority of the task concentrating on the issues marked by the DSDC. Predominant in these issues was that of cost and it was cost that made the pendulum swing in AMECON's favour. AMECON came in the cheaper of the two and was selected to undertake final negotiations for the prime contract.

PRIME CONTRACT

The final development of the Prime Contract continued with AMECON from where it was left before the BAFO. Outstanding terms and conditions were negotiated and working parties tidied up various annexes for such aspects as ship specifications, logistics, management, build strategy, facilities etc. The build strategy was of particular concern

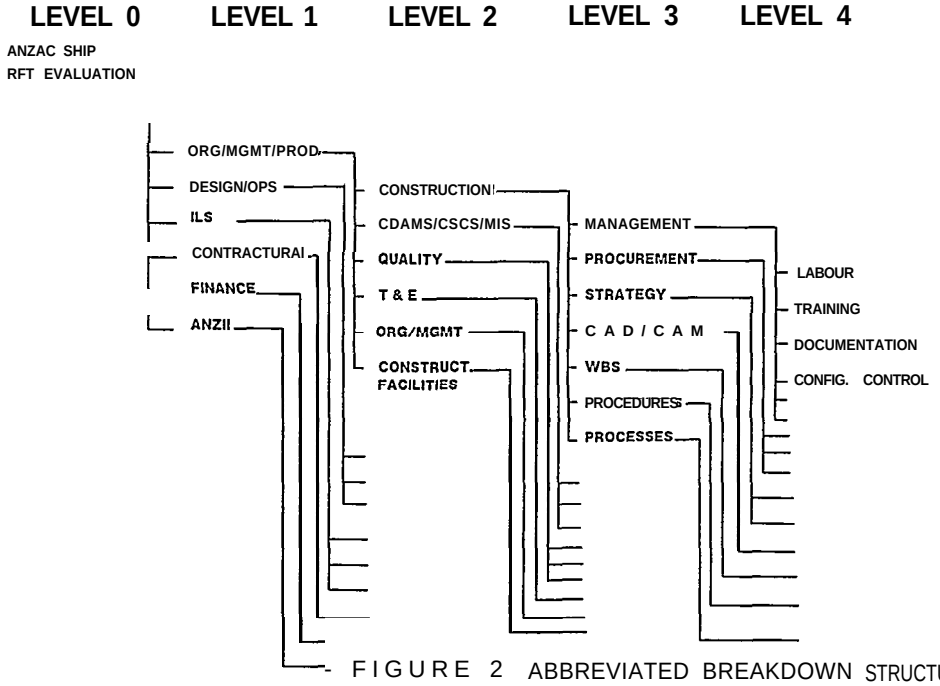


FIGURE 2 ABBREVIATED BREAKDOWN STRUCTURE

because although agreement had been reached on price it was of note that to achieve this price with the attendant requirement for Australianisation of the design and local industry involvement a considerable amount of up-front engineering was required to change the MEKO detailed design from that being used in West Germany to that required for construction in Australia.

The MEKO 200 ANZ is shown at Figure 3.

There are two interesting construction techniques embodied in the Australian MEKO 200 (MEKO 200 ANZ). The first, and that which was emphasised by Blohm and Voss, is the use of function units, particularly weapon units, which allows a relatively easy mix-and-match without significant change to the ship.

The second construction technique embodies the concept of module construction coupled with high levels of hot and cold pre-outfitting, zone outfitting methodology, and group technology. This method makes use of the excellent access that is available to the work place through large openings in the decks and ends of the hull modules. Figure 4 shows the MEKO 200 ANZ hull and superstructure module configuration.

The full extent of zone outfitting and group technology will not be achieved until part way through the build program, but already AMECON is putting some of these techniques to work in the FFG construction program.

The MEKO steel work drawings are being developed to enable all hot outfitting of modules, including in-tank pipework to be completed before the blast and paint operations. The modules will be extensively pre-outfitted with equipment and services before they are consolidated on the building berth and before the separate function units are installed.

Construction and pre outfitting of some of the six hull modules and six superstructure modules will be carried out away from the AMECON shipyard . This provides production flexibility, improved schedule performance and reduced critical path dependence on resources at the shipyard.

The build strategy plans to use sites in Newcastle and in New Zealand. These sites have infrastructure which will not require extensive development of facilities and personnel to meet AMECON's requirement. Should a site become inefficient there is flexibility to relocate work to another. The build strategy provides continuous competition and inherently mitigates risk. Within the build strategy AMECON will construct the two machinery modules of the hull and the combat/communications/navigation module of the superstructure at Williamstown.

The present facilities at Williamstown are suitable for FFG construction, however for a programme as extensive as the ANZAC programme it is recognised in the Prime Contract that some upgrading is required. A feature of the upgrading is the installation of a shiplift facility. A shiplift will also

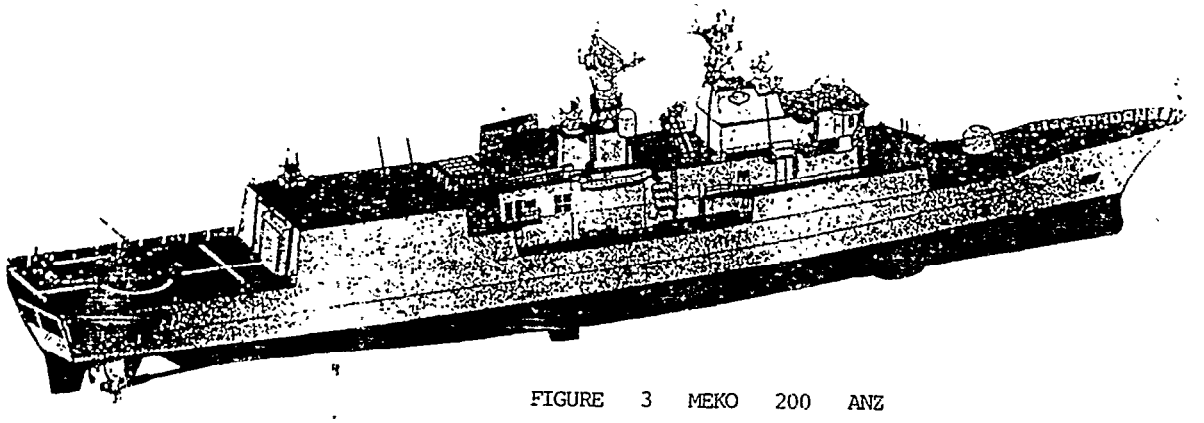


FIGURE 3 MEKO 200 ANZ

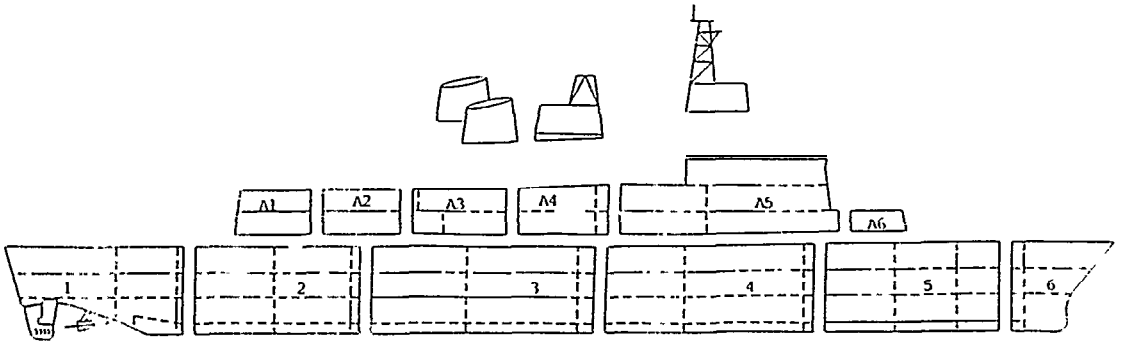


FIGURE 4 MEKO 200 ANZ MODULES

provide AMECON with the capacity to receive sub-contracted modules by transfering from a special purpose self levelling sea-going barge by means of a multi-wheeled transporter. Additionally the shiplift will provide an alternative to the Graving Dock for the docking and launching requirements of the testing program, as well as capacity to dock ships completed earlier in the build programme.

The up-front engineering task largely dictated the delivery programme which is shown at Figure 5. With delivery of the first ship mid 1995 there is time before cut steel for documentation to be produced to facilitate integrated hull, outfitting and painting and procedures for group technology to be developed. The accurate and timely completion of this up-front engineering is absolutely vital to the success of the program.

AUSTRALIA/NEW ZEALAND TREATY

Although a Memorandum of Understanding had been signed at the beginning of New Zealand's involvement in the ANZAC ship project it was necessary that a further agreement be entered into, after the Prime Contract signing between the two Governments. Such an agreement called the 'Agreement Between Australia and New Zealand Concerning collaboration in the Acquisition of Surface Combatants for the RAN and RNZN' (also called the Treaty) was signed by representatives of both Governments on 14 December 1989.

The Treaty details management arrangements, payment obligations for each country, arrangements for Australian and New Zealand industry activities flowing from the Prime Contract, arrangements for logistic support, and other matters of a contractual nature regarding the rights and obligations passing from Australia to New Zealand.

The responsibilities, authorities and reporting requirements for the Joint Project are contained in a Project Management and Acquisition Plan (PMAP) which stems directly from the Treaty. The top level management arrangements are shown at Figure 6.

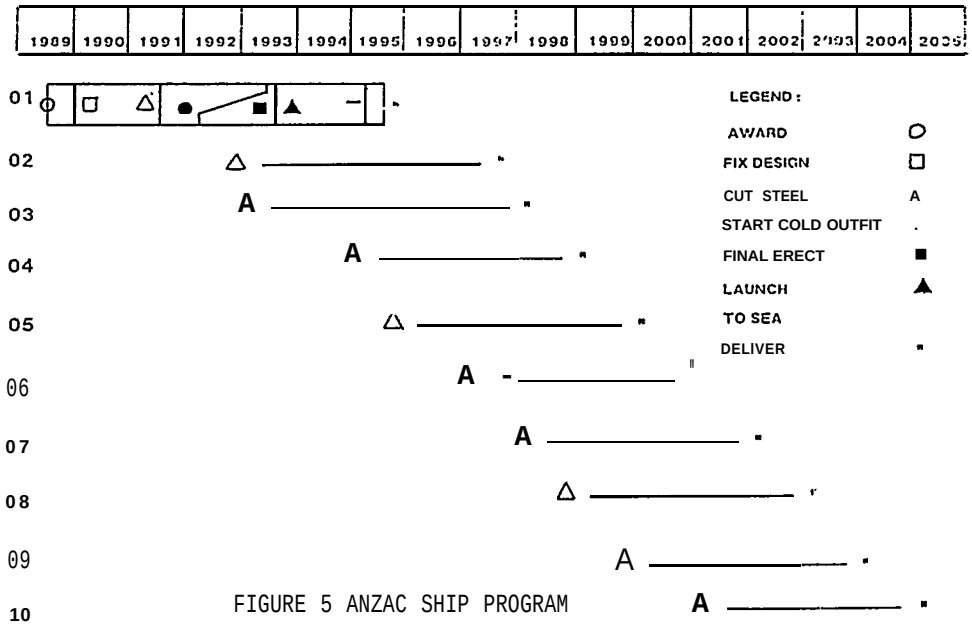


FIGURE 5 ANZAC SHIP PROGRAM

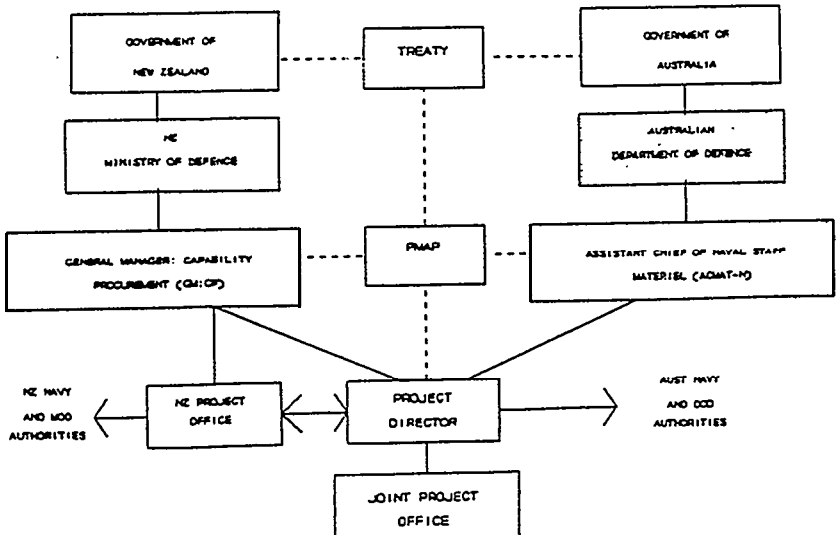


FIGURE 6 TOP LEVEL MANAGEMENT ARRANGEMENTS

EXPECTATIONS

The Departments expectations from the ANZAC ship contract are high. As with any contract, delivery on time and within budget is expected to be achieved and the ANZAC ship contract is no exception. However, in addition to this the Government's aim to foster two centres of concentration of shipbuilding (Williamstown in Victoria and Newcastle in New South Wales) and further develop the Australian defence industry are of equal importance. The achievement of this aim will be a once off activity with the restructured industry vying for both Australian and offshore shipbuilding contracts.

The logistic and build strategy arrangements in the contract should, with trust between all parties, enable all expectations to be achieved.

CONCLUSION

The ANZAC Ship program is a very large commitment by Australian standards. A single variable price contract for 10 ships requires very careful management to control configuration and costs. Achievement of Australian and New Zealand industry involvement targets is a key aim. In order for the contractor to make a reasonable profit he will have to introduce modem shipbuilding techniques and closely control his sub-contractors.

Finally, it should be pointed out that the strategy employed to achieve the ANZAC contract was, to some extent, dictated by Government and industry objectives. It worked well for the project, but later contracts should be somewhat simpler in their nature.

References:

Beazley, K. Minister for Defence. "Parliamentary Debates" 19 March 1990.

"The Defence of Australia". 1987 Government White Paper.

Beazley, K. "Defence Ship Building Decisions". 1 April 1987.

Dibb. P. " Review of Australia's defence capabilities". March 1986.