U.S. Department
of Transportation

**United States
Coast Guard**

POLAR ICEBREAKER REPLACEMENT PROJECT MANAGEMENT PLAN

COMDTINST M16155.3

U.S. Department of Transportation
United States Coast Guard

COMMANDANT (G-AIB)
U. S. Coast Guard
Washington, DC 20593-0001
Phone: (202) 267-0750

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COMMANDANT INSTRUCTION M16155.3

Subj: Polar Icebreaker Replacement Project Management Plan

1. PURPOSE. The purpose of this Project Management Plan (PMP) is to establish a framework to manage the Polar Icebreaker Replacement (PIR) Project. It identifies the organizational elements within the Coast Guard responsible for accomplishing specific tasks in a scheduled timeframe; culminating with the operation of a fully capable fleet of Polar Icebreakers with Logistic Support in place.

2. DIRECTIVES AFFECTED. The Polar Icebreaker Replacement (PIR) Project Logistic Support Plan (LSP) is under development. An interim LSP is included as Chapter 6, Task Responsibility Chart (enclosure (1)) and Task Descriptions (enclosure (2)). Chapter 6 and enclosures (1) and (2) will be included in the PIR LSP when promulgated. This document supplements organizational relationships in the Coast Guard Organization Manual, COMDTINST M5400.7 (series).

3. DISCUSSION. This PMP formalizes the applicable management techniques which specifically apply to the PIR project. Chapter 16 of the Planning and Programming Manual, COMDTINST M16010.1 (series) and the PIR Project Manager's Charter from Commandant (G-CCS) requires the Project Manager to plan and execute the project, and it also provides the Project Manager (PM) with the authority and the management "tools" to meet project objectives.

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3. (cont'd) The key management tools are the latitude to cross program lines; a procedure for conflict resolution; the PM's authority and responsibility for scheduling project tasks and monitoring their completion; configuration control to meet performance objectives of the Project Sponsor, Commandant (G-O), and management of project funds. The elements necessary for timely project execution are included in this management plan. Of these, the most critical elements are a free and open information flow, commitment to PIR project task responsibilities, a willingness to air and resolve problems and conflicts as they arise, and a positive attitude toward achieving the project objectives. Project management must respond to a multitude of specialized issues that do not fall neatly into any one functional area. Additionally, the project manager is held accountable for accomplishing the project scope within the cost and schedule constraints. These project objectives may conflict with the priorities of the other programs. Therefore, execution of this PMP is heavily dependent on the expertise and resource availability within the functional support areas, (Program, Support, and Facility). This plan identifies organizational elements that will accomplish specific project tasks. This PMP reflects the status of the Polar Icebreaker Replacement acquisition project as of 1 November 1986.

4. PROCEDURES.

a. Program, Support, and Facility managers (Headquarters Division Chiefs) responsible for planning and accomplishing the project tasks outlined in enclosures (1) and (2) shall take this project management plan as both guidance and tasking in matters pertaining to the project. Status and financial reports shall be regularly submitted in the normal course of business to permit accurate assessment of progress and to afford early corrective action when problems arise. A report format is provided as enclosure (3). In addition to regular reports, cognizant Headquarters Division Chiefs and Task Leaders shall inform the PM immediately whenever a situation arises which may affect the project scope, cost, schedule, or specific Task commitment.

b. The PM shall manage the project as outlined in this plan. The PM shall identify and resolve all problems arising in the execution of this plan. If unable to reach a workable solution, the PM shall immediately inform Commandant (G-A) who will take appropriate action in consort with Commandant (G-CCS), Headquarters Office Chiefs, or Coast Guard field commanders as necessary.

4.b. (cont'd) The PM shall be the primary source of project information which shall be promulgated in periodic status briefings, shall reply to official inquiries, written reports and other correspondence. The PM will request project funds, control the financial plan, and direct logistic support development.

5. ACTION. Area commanders, district commanders, chiefs of offices and special staff divisions at Headquarters, and unit commanding officers shall ensure compliance with this instruction.

CLYDE T. LUSK, JR.
Chief of Staff

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CHAPTER 1. SCOPE AND OBJECTIVE

A. Project Scope.

1. The Polar Icebreaker Replacement (PIR) Project will provide a national asset which is both a replacement of capabilities existing in the aging Wind Class Icebreakers and an enhancement in capabilities to meet multi-agency user needs to the year 2000 and beyond. Specifically, improved scientific capabilities and the capability to operate independently for resupply and logistics support missions must be provided. The project includes development of support systems for the new ships. The Polar Icebreaker Requirements Study (PIRS) of July 1984 is the source document for this project effort.

   a. The Mission Needs Statement of February 1985 and a revised Sponsor's Requirement Document of March 1986 provide the operational requirements, and establish the parameters for measuring trade-offs in executing this project.

   b. The PIR project scope includes the following key elements:

      (1) Establishing specific requirements for design, development, testing, deployment, and support for a system to meet the needs identified in PIRS.

      (2) Acquiring two or more new ships to satisfy the sponsor's operational requirements, especially science capability and operational access in ice covered waters, and to replace obsolete and unsupportable equipment.

      (3) Providing equipment standardization among the new ships and within the Polar Icebreaker fleet to the maximum extent possible.

      (4) Providing an adequate support structure for the new ships including necessary facilities.

      (5) Providing a service life of 30 years, extending capabilities beyond the year 2000. Other benefits of meeting current standards in the PIR project include greater command and control effectiveness, safety of operations, and improved personnel habitability over the Wind Class ships.

      (6) Minimizing life cycle cost of the new system.

1.A.1.b. (7) Determining and acquiring the resources to operate and maintain the new ships.

1.B. Objectives.

1. Project objectives are threefold and can be expressed in terms of cost (budget), schedule, and performance (scope). Specifically, these objectives are:

   a. Cost. Program costs for shipyard production, contract modifications, government furnished equipment, spares, outfit, project administration, shore support facilities, escalation on the prime contract, and associated contract costs shall not exceed funding provided by Congress for executing the PIR project. The project financial plan is included in enclosure (4) of this plan.

   b. Schedule. The congressional goal of two or more new icebreakers operational by 1990 cannot be met. The best effort schedule objective is for the first new icebreaker to be operational in 1993 and the second in 1994. The conceptual design through contract design is being done by the Coast Guard. The construction contractor will accomplish detailed design. Award of a multi-year negotiated contract is expected in FY 1989. Delivery of the first ship is planned for 48 months after contract award. The second ship is to be delivered one year after the first. A two month material onload, two months for shakedown and discrepancy correction, two months for sea and ice trials and a three month post trials availability period are planned before each cutter is deemed "ready for operations." The project will terminate when the last cutter is ready for operations, and support is in place about June 1994. A master schedule is prepared and maintained by the PM. Enclosure (5) is a schedule overview.

   c. Performance. Ship and shore support will be provided to meet requirements of the program sponsor. These performance criteria are detailed in Mission Needs Statement and Sponsor's Requirements Document. Planning, funding, management, and design will be accomplished by cognizant Coast Guard elements as indicated in this plan. Program, Support, and Facility managers (Headquarters Division Chiefs) are responsible for proper performance of both specified and unspecified tasks under their general responsibilities in the Coast Guard Organization Manual, COMDTINST M5400.7 (Series).

1.B.1. c. (cont'd) Shipyard contractors shall meet the description of work, specifications, supplies/services and delivery schedules, and other contractual agreements. Some Government Furnished Information (GFI) and Government Furnished Equipment (GFE) may be provided in accordance with the contract specifications. Headquarters Division Chiefs shall specify the logistic support requirements to ensure that each new icebreaker is properly commissioned, fully crewed with trained personnel, and adequately outfitted and provisioned.

(1) Major performance parameters include:

a. Icebreaking capability of: 4.5 ft of first year level ice continuously at 3 kts and 8.0 ft by backing and ramming.

b. Endurance of 80 days for fuel and 180 days for provisions. Cranes and cargo holds for logistics.

c. Survivability to meet two compartment floodable length and 100 knot beam wind intact stability criteria.

d. Flight deck and hangers for 2 HH65A helocopters.

e. Accomodations for 30 scientists, 5 science laboratories including 2 wet labs and 3 dry labs, high overhead vestibule, open working space on deck, accommodations for 5 standard vans, winches and cranes, limited specialized equipment.

f. Small arms, NBC washdown, and degaussing.

g. Minimum crew and minimum life cycle cost with maximum reliability and maintainability through a simple, reliable ship.

h. Adequate communications, navigation and data processing capability.

CHAPTER 2. PROJECT MANAGEMENT ORGANIZATION

A. Organization.

1. This project represents a complex major acquisition requiring special organizational relationships. The matrix organizational relationships described in this plan supplement the organizational relationships set forth in the Coast Guard Organization Manual, COMDTINST M5400.7.

2. In a matrix organization, management functions flow both vertically (traditional direction along functional organizational lines) and horizontally (planning, scheduling and integration) along project lines. Enclosure (6) depicts the Polar Icebreaker Replacement (PIR) project management matrix organization.

3. The Project Manager (PM) is responsible for overall planning, coordination, execution, and monitoring while the functional staffs of the PIR project organization execute the project task activities identified in the Work Breakdown Structure (WBS). Headquarters Office or Division Chiefs will make commitments to accomplish project tasks within time, cost, and performance constraints and assign Task Leaders. The PIR project task leaders are concurrently responsible to both the PM and their functional supervisor (Division Chief) for information flow, resource requirements, project issues, status reporting, and conflict resolution. This responsibility requires the utmost in cooperation, commitment, and communication for the project to proceed effectively. Commandant (G-APS) provides matrix support and direct resources for project Tasks Leaders who report directly to the PM for specified periods.

B. Responsibility and Authority.

1. The PM is, by charter designation, the focal point of the matrix organization. Therefore, the PM alone is accountable for the timely execution of the PIR project within scope, on schedule, and within budgetary constraints. Specifically, the PM is directly accountable for the preparation and maintenance of project plans, development of the Work Breakdown Structure (WBS), scheduling of the required PIR tasks and activities, coordinating the interaction task activities affecting the project, maintenance of the Project Master Schedule (Critical Path Method (CPM) Network), integration of the logistic support planning, and maintenance of up-to-date project documentation files. Additionally, the PM is responsible for maintaining the PIR project financial plan and preparing budgetary documents as required.

2.B.1. (cont'd) The PM monitors and reports project progress to higher authority, including Commandant and the Office of Secretary of Transportation (OST) and works to resolve conflicts and other problems arising during project execution. Management oversight is provided by Commandant (G-A).

2. The PM is authorized by charter from Commandant (G-CCS) to task the functional elements with accomplishing specific tasks toward completion of project objectives. The PM has the authority to take all action necessary to ensure the acquisition is completed in accordance with the approved plans including the Project Management Plan (PMP), statements of work, schedules, and financial ceilings. The PM shall have direct access to PIR Task Leaders and team members for liaison and all PIR project related information originated within the functional staffs. In addition to tasking and access, the PM is also authorized to request and receive, in a timely manner, summaries of project information including progress reports, financial status, cost accounting and budgetary information. The PM is the approval authority within the parameters of COMDTINST M7100.3 (series) Manual of Budgetary Administration on all project financial and procurement documents. The PM also has intermediate approval authority on all changes in project scope and financial plans. Financial plans will be approved in the normal C.G. budget development. With the approval of Commandant (G-A), the PM is the only individual authorized to initiate changes to this PMP. Changes in project scope will be coordinated with the sponsor.

3. The PM is responsible through the chain of command to meet the project objectives on time, within budget, and with a system capable of meeting the sponsor's requirements.

   a. Technical guidance for project tasks completion shall be provided by designated functional divisions. This is appropriate since the functional managers have direct management control over their staff elements. As the technical experts in their functional fields, they are responsible to ensure that all tasks which fall within their functional area contained in COMDTINST M5400.7B, (series) Coast Guard Organization Manual are accomplished. Accordingly, Headquarters Division Chiefs share in the responsibility of project activity completion and will be accountable to Commandant (G-AIB) to meet task commitments within cost, schedule and performance constraints.

2.B.3. b. Headquarters Division Chiefs will review the tasks listed in enclosures (1) and (2) of this plan, and forward recommended changes or status updates to the PM.

c. A limited technical staff is assigned to the PM to provide direct technical support and advice. Those technical staff elements shall follow established Coast Guard policy in carrying out their duties.

4. Headquarters Division Chiefs will designate Task Leaders as key members of the project team to accomplish task commitments. The Task Leaders represent the interface between the functional staff and the project staff. They coordinate the accomplishment of assigned project work activity and communicate task performance and problem identification to both their Headquarters Division Chiefs and the PM. Task Leaders are responsible for the specific PIR Tasks assigned to their divisions in this PMP with particular emphasis on achieving balance among attainment of the task objectives, cost effectiveness, and schedule adherence.

5. A dedicated Logistics Support Manager (LSM) shall be provided on the PM's staff. The LSM functions in a matrix environment similar to the PM. This individual is responsible to the PM for planning, coordination, and integration of the various support system elements. This includes supply support, maintenance support, personnel and training support and facility support. Primary duties include establishment of PIR Integrated Logistics Support Plan (ILSP). Planning in the ILSP includes systems engineering elements such as requirements management, configuration management, data management and test and evaluation. The support elements to be integrated include repair parts, maintenance, including a Preventative Maintenance System (PMS), training, and operating and technical data. Special emphasis is placed on the interaction of such critical areas as provisioning, repair part and PMS analysis, inventory control, and configuration management. Integrated Logistics Support (ILS) concepts shall be incorporated wherever practical and cost effective.

6. In addition to formally designating project Task Leaders, each Program, Support and Facility Manager (Headquarters Division Chief) shall also identify a suitable member of the division staff to function as their Logistic Support Coordinator (LSC). LSC's shall be the focal point within each division for logistic support analysis and planning. Additionally, the LSC's shall be members of the Logistics Support Management Team and shall be responsible to the LSM through their Headquarters Division Chief for their program's input into the Logistic Support Plan (LSP).

2.B.7. Contract execution and configuration control are defined in the PM's charter as responsibilities of the PM. The commanding officer of the Resident Inspector Office (RIO) will report to the PM and will obtain technical guidance and assistance from personnel assigned to the PM's staff. The PM's staff will coordinate technical issues and the PM will request technical assistance from appropriate headquarters divisions as required to ensure that established Coast Guard policies are followed. A contracting officer (KO) will be assigned to the PIR project from its inception and at designated times the KO will also be detailed to the PM's staff. Technical oversight in contract matters shall be exercised via the head of the contracting activity Commandant (G-ACS) through Commandant (G-ACS-3).

8. Project conflicts can and must be resolved through effective communications and coordination. Conflicts which arise between demands of this project, and those imposed by other functional responsibilities, should be resolved at the lowest level possible. Commandant (G-A) will be the final arbitrator of all conflicts involving the PIR project.

CHAPTER 3. ACQUISITION STRATEGY

A. General.

1. Per the Source Selection Plan (SSP) which must be approved by the Office of Secretary of Transportation (OST), the method of procurement will be full and open competition using a Request for Proposal (RFP) type offer. The resulting contract will be a multi-year firm fixed price contract, with economic price adjustment. The SSP and Evaluation Criteria will be developed per enclosures (1) and (2). Source selection is based on specific evaluation criteria to select the proposal determined to best meet the governments needs in terms of technical considerations and logistic support considerations (embodied in the technical proposal).

2. The construction contract for the Polar Icebreaker Replacement (PIR) will include logistics support requirements in the statement of work. This will require the contractor to address support concerns in the bid response. Specific Source Evaluation Criteria will be designed to ensure that the successful bidder is capable of incorporating logistics concerns into the detailed design and ship construction. This will not preclude the consideration of cost, experience, and management portions of shipbuilders proposals in evaluating for award. Additionally, the contractor will be required to prepare an Integrated Support Plan (ISP), the commercial equivalent of an ILSP. Logistic Support Analysis (LSA) requirements will be included in the contract specifications. The LSA and support portions of the statement of work will incorporate MIL-STD-1388-1A. It shall be automated and reports prepared in accordance with MIL-STD-1388-2A. A government support manager at the RIO will provide management oversight, direction, and interface with the contractor's logistic support manager. The contractor shall establish a logistic support management organization equivalent to the engineering designer/department head which shall do preliminary and critical design reviews. The Project Manager (PM) will coordinate the development of tailored LSA tasking and data requirements.

3. Additional contracting efforts such as electronics design, various studies, shore support, GFE procurement and GFE logistics support including retrofit may be required. These minor contracts will be executed according to accepted procurement practices appropriate to the contract size and type.

3.B. Restrictions.

1. Congressional legislation may restrict construction of these ships to U.S. shipyards.

CHAPTER 4. PLANNING AND SCHEDULING SYSTEMS

A. Work Breakdown Structure.

1. A project Work Breakdown Structure (WBS) is used to assist in planning, scheduling monitoring and controlling the project. The WBS breaks down the project into manageable work segments which enables planning, monitoring and controlling the project. The principle advantage of a WBS is that it provides specific information to those responsible for actually completing the project work. Thus, functional managers can anticipate workload requirements.

2. The Polar Icebreaker Replacement (PIR) WBS results from an analysis of the project to identify work components, each of which has its own objective in the form of a deliverable product; such as a written specification, an approved plan or a procured item of equipment. An overview of each task is provided in enclosures (1) and (2). For each task in the WBS the following information must be identified:

   a. Task Description - The work is specified in terms of the completed work product. In some cases the task is repeated for each ship. The scope for each task will be developed jointly by the PM and responsible Division.

   b. Organizational Element - The designation of responsibility for the activity or task.

3. The WBS identification system uniquely specifies each system task and activity.

   EXAMPLE: IB02-OIO-SOBECK

   a. IB - Designates PIR project work.

   b. 02 - Task 02.

   c. OIO - Identifies G-OIO as the Division responsible for assisting the PM in task development, negotiating the resource requirements and schedule, and completing the work.

   d. SOBECK - Specifies the designated Task Leader.

B. Scheduling.

1. Most PIR tasks are dependent on the completion of other project tasks. This dependency is the basis for scheduling interdependent tasks.

4.B.1. (cont'd) The estimated time to complete each task (in days) along with the task interdependencies form the data base for a computerized Critical Path Method (CPM) scheduling program. The resulting schedule provides start and finish dates for each task, calculates the slack, or float, and identifies the PIR project critical path tasks. (The critical path is the series of tasks determining the duration of the entire project.)

2. The PM will use the task planning estimates of the Headquarters Division Chiefs and Task Leaders to construct a baseline CPM schedule of all PIR tasks. Task commitments will be negotiated to achieve overall project goals and to identify the critical path. The resulting baseline schedule will show the tasks on the critical path and will indicate the slack available for those tasks not on the critical path. This information will be provided to the Headquarters Division Chiefs on a bi-monthly basis. Once a commitment is made by cognizant divisions only the PM is authorized to change the schedule.

3. Tasks will be broken down into work packages. Task Leaders will report progress to the PM through a division or task status report at least monthly for all activities in progress. In addition, task leaders shall report completion of project or task milestones, anticipated inability to meet task cost, schedule, or performance goals immediately to the PM.

C. Task Management.

1. Central management of the PIR project is not intended to conflict with existing Coast Guard functional and organizational authority. Each PIR task will be managed by the Headquarters Division Chief organizationally responsible for the task. Centralized management of the PIR project is based on the task management information provided by the Headquarters Division Chiefs and Task Leaders. The planning process is built on estimates and negotiation for completion of each task, including cost estimates of the resources required to complete the task, dependencies on other tasks such as planned immediate predecessor and successor tasks, and the relationship to the predecessor and successor tasks (e.g. 50% of Task A must be complete before Task B can start).

2. The Headquarters Division Chiefs will assign a PIR Task Leader to each task. The Task Leaders will be responsible to their Headquarters Division Chiefs and the PM for the completion of assigned tasks.

4.C.2. (cont'd) The Task Leader is responsible for keeping the PM informed regarding the status of project tasks as outlined in the reporting section of this plan.

D. Resource Management.

1. The resources to accomplish PIR project tasks are primarily Acquisition, Construction and Improvement (AC&I) funded personnel, AC&I funds, and capital assets such as computer and word processing equipment but include some Operating Expense (OE) funded personnel. Personnel and capital assets will be managed by the responsible Headquarters Division Chiefs. The Division Chief and the PM will work together to resolve the conflict in support of project goals. When conflicts arise in personnel or asset management which may affect the completion of PIR tasks as scheduled, the PM will be informed. Headquarters Divisions requiring AC&I personnel to support the PIR project will submit annual requests according to current guidance to the PM who will request project resources. The PM will consolidate, submit and monitor resource requests and ensure adequate timely project resources are obtained. If the Division Chief prefers to consolidate AC&I personnel requests to the AC&I personnel manager, a copy of the request identifying PIR personnel requirements will be provided to the PM. The PM will address resource shortfalls at appropriate levels.

2. The PM will request and manage the PIR AC&I appropriated funds in accordance with the Financial Plan, enclosure (4), of this plan. The PM prepares and submits both AC&I and OE funding requirements based on an annual budget estimation. OE follow on funding will only be requested for initial OE baseline for personnel, operations and maintenance of ships and facilities. These estimates are submitted by Headquarters Division Chiefs for Task Leaders and field activities under their cognizance and must be approved by the PM. The PM will provide necessary justification as the budget passes through stages to final appropriation. The PM shall be provided with a quarterly accounting of project obligations and funding balance in order to monitor the status of funds distributed to accomplish project tasks. Commandant (G-APA) will assist the PM.

E. Scheduling Techniques and Displays.

1. The PM will maintain the WBS Task computerized data base.

4.E.1. (cont'd) The data base will be updated regularly with the information reported by the Task Leaders in accordance with the Project Monitoring, Control and Reporting Section , Chapter 5, of this plan.

2. The CPM will be used to construct a current PIR schedule from the project data base. The master schedule will display the ongoing and future tasks on the project's critical path. The master schedule will be supported by subsidiary CPM displays developed by Task Leaders, and approved by Division Chiefs, for tasks designated by the PM. Progress along the CPM display will be reported at least monthly and whenever any slip of a project task or project milestone is anticipated. Any variance between planned (PIR Master Schedule and subsidiary CPM displays) and current progress will be included.

3. The PM will routinely provide project status information to the Chief, Office of Acquisition, Office Chiefs, and other persons concerned with the project. The status will show :

   a. Tasks completed during the period.
   b. Tasks started during the period.
   c. Tasks currently behind schedule.
   d. Organizational elements responsible for doing tasks.
   e. Description of Tasks.

CHAPTER 5. Monitoring, Control, and Reporting

A. Monitoring

1. The Project Manager (PM) is responsible for the integration of Polar Icebreaker Replacement (PIR) project tasks into a unified effort, while Headquarters Division Chiefs are responsible for the completion of individual PIR tasks. The PIR Task Leaders, under the direction of the cognizant Headquarters Division Chief, are responsible for managing the completion of each PIR task assigned. The Task Leader has a dual responsibility as reflected in the PIR Organization Chart, enclosure (6). Both the Headquarters Division Chief and the PM must be kept informed of the status of each PIR task.

2. All Tasks will be broken down into work packages and milestones identified, Task descriptions will be developed by the PM and Task Leaders. Task Leaders shall prepare and provide the PM a Critical Path Method (CPM) chart for each task over 6 months in duration and for other specific tasks designated by the PM. For tasks of lesser duration Task Leaders will provide to the PM, milestones, milestone relationships, and Task descriptions.

3. The PM will prepare and maintain the PIR Master Schedule using CPM. The Commandant (G-A) will review and approve the Master Schedule.

4. Headquarters Division Chiefs shall provide the PM copies of all correspondence and documentation related to or affecting this project. Detail sufficient to provide a clear audit trail is required. The PM will maintain complete, up to date management documentation for the project.

B. Control.

1. The PIR Master schedule will identify all required tasks to accomplish project objectives. It will show those tasks initially on the project critical's path. As the project continues, actual progress may cause previously non-critical tasks to become critical. The PM will immediately notify Tasks Leaders and Division Chiefs if the critical path status of any PIR task changes and vice-versa. The PM will prepare recovery plans if cost, schedule, or performance goals are affected.

2. Project status documentation includes monthly status reports by the Headquarters Division Chiefs and Task Leaders; written notifications of scope, schedule, or cost estimate changes; various computer generated charts and graphs reflecting PIR project status including the Master Schedule; and bi-monthly briefings by the PM.

5.C. Reporting.

1. Each PIR task has a cost (funds, personnel, and asset utilization), a schedule (time constraint), and scope (deliverable items). Project monitoring, control and reporting will be accomplished by information flow which reflects these three components projected as a whole. Three questions need periodic answering:

   a. To what degree has the scope of the task been completed? This includes progress of task work packages and associated milestones.

   b. How does actual progress towards completion of the task compare to the planned progress for the period?

   c. Has the forecast scope, schedule completion date, or cost of the Task changed since the last report?

2. Status reports will be provided to the PM on a monthly basis. These reports will include an updated task CPM if required. Task Leaders, through their Headquarters Division Chiefs, will make a status report as of the end of the month for each PIR task to be delivered to the PM by the 5th day of the following month. The critical element of the task status reports is the information conveyed, not the format. However, a suggested report format is provided as enclosure (3). In addition to periodic project status reports, a report (oral or written) must be made to the PM immediately when any action occurs which may impact the scope, schedule or cost of any PIR task. The Project Manager will keep the "Project Sponsor" and "Program Manager" informed of any impact on performance or schedule. RIO and COTR's will report contract status under the same guidance as task leaders when established. The PM will provide periodic status briefings to Commandant (G-A), Headquarters Office Chiefs, OST, and interested parties. The PM will prepare written reports as required by Department of Transportation (DOT) Order 4200.14 and others as appropriate.

CHAPTER 6. LOGISTICS SUPPORT REQUIREMENTS

A. Integrated Logistic Support.(ILS)

1. Purpose. ILS planning will be developed to ensure realistic application of ILS considerations as principal design parameters along with cost, technical excellence and simplicity of operation and maintenance. Special emphasis is placed on life cycle cost, reliability and maintainability to reduce the requirement for personnel and high level skills in the operations and maintenance of systems. A discussion of these parameters is presented in the Concept of Operations, enclosure (7). This chapter serves as an interim Logistics Support Plan.

   a. The Polar Icebreaker Replacement, (PIR) project logistic support tasks are included in enclosures (1) and (2) to identify each task, describe its key elements and indicate the division responsible for completing the task. Completed project tasks are shown for continuity.

   b. Technical guidance and direction for project Task completion shall come from the designated functional division. Each Headquarters Division Chief shall identify a suitable staff member to function as their Logistic Support Coordinator(LSC). The Task Leaders may necessarily perform this function in some instances. LSC's are the focal point within each division for logistic support analysis and planning.

   c. ILS is a composite of all support considerations necessary to assure the effective and economical support of a polar icebreaker for its life cycle. It is an integral part of all other aspects of system acquisition and operation and is characterized by harmony and coherence among all the logistic elements. The principal elements of ILS related to the overall system life cycle are:

      (1) Maintenance Plan
      (2) Supply Support
      (3) Personnel
      (4) Training
      (5) Support and Test Equipment
      (6) Technical Data
      (7) Computer Resources
      (8) Facilities
      (9) Packaging, Handling, Storage and Transportation
      (10) Design Interface
      (11) Logistic Resource Support

6.B. Integrated Logistics Support Plan (ILSP) Development.

1. The Maintenance Plan. The maintenance plan for a system will form the basis for tracking all the other ILS elements. The maintenance plan includes the Maintenance Concept, enclosure (8) developed as a principle design criteria.

2. Supply Support. This includes the timely provisioning, distribution, and inventory replenishment of spares, repair parts, and special supplies. It is intended to provide information and guidance for acquiring the desired degree of support at the earliest possible time.

3. Personnel. This element is concerned with identifying and providing an adequate number of qualified personnel to operate and support the vessel over its lifetime in its operational environment. This element is closely related to Training.

4. Training. This element is concerned with providing adequately trained personnel with the necessary skills required to operate and support the vessel in its operational environment.

5. Support and Test Equipment (STE). The purpose of the support and test equipment element is to assure that the required test and calibration equipment is available to the operating personnel and support maintenance activities in a timely manner.

6. Technical Data. The purpose of the technical data planning effort is to provide for the timely development and distribution of the various data necessary to conduct operators training, maintenance supply, modification, rebuild, etc., of the system equipment.

7. Computer Resources. This element includes the computer equipment, all the computer programs and data, associated documentation, computer facilities, computer personnel and computer services required during the life cycle of the vessel.

8. Facilities. The purpose of the facilities program is to assure that all required facilities real property included are available to the operating forces and supporting establishments in a timely manner.

9. Packaging, Handling, Storage and Transportation. This ILS element addresses the management process necessary to develop the capability to transport, preserve, package, and handle all systems/equipment and support items.

6.B.10. Design Interface. This element trys to ensure that logistic support considerations are a part of the desigh process and that changes in the system design during the various design and construction phases are reviewed for impact upon logistic support before being accepted.

11. Logistic Resource Support. The support resource expenditures over the life cycle of a system represent a major portion of the total cost and are sometimes the principal cost item. These resources must be identified as part of the total program costs. As the final version of the ILS is developed, a definitive information reporting method will be established.

C. Summary.

1. The ILSP objectives for the Polar Icebreaker Replacement are summarized as follows:

(a) Refinement and evaluation of the proposed support concepts.

(b) Identification and validation of the elements of system support.

(c) Identification and demonstration of maintainability and reliability requirements.

This Chapter of the Project Management Plan will be incorporated into a separate ILSP during the contract design phase to reflect further development in the PIR project.

NO.	RESP. DIV.	ASST. DIV.	TASK/ACTIVITY
			PROJECT MANAGEMENT
1	G-AIB	G-APS	DEVELOP AND MAINTAIN PMP
2	G-OIO		PREPARE CONCEPT OF OPERATIONS
3	ALL		SUBMIT STATUS REPORTS
4	G-AIB		PRESENT PROJECT STATUS REVIEWS
5	G-AIB		MAINTAIN CPM/DATABASE NETWORK
6	G-OIO		UPDATE SPONSORS REQUIREMENT DOCUMENT
			SHIP ACQUISITION PLAN
7	G-AIB	G-ACS, APS, ENE;	DEVELOP SCHEDULE FOR CONTRACT AWARD
		ICP's	AND CONSTRUCTION
			CONFIGURATION MANAGEMENT
8	G-ENE	G-AIB, APS, RIO	PROVIDE ENGINEERING TECHNICAL SUPPORT
9	G-AIB	G-AQA, ENE, OIO,	ESTABLISH CONFIGURATION MANAGEMENT PLAN
		G-TES; ICP's	
10	G-AIB	G-ACS, OIO	CONDUCT CONTRACT MODIFICATION REVIEW
			TECHNICAL DATA MANAGEMENT
11	G-ENE	G-ENE-5, OIO, TES	DETERMINE TECH DATA RQMTS FOR PIR PROJECT
		G-APS	
12	G-ENE	G-ENE-5, TES; ICP's	DETERMINE TECHNICAL LOGISTICS DOCUMENTATION
			SOURCE SELECTION PLAN
13	G-ACS	G-AIB	DEVELOP SOURCE SELECTION PLAN
			INTEGRATED LOGISTIC SUPPORT MANAGEMENT
14	G-AIB	G-APS, ENE, TES	DEVELOP LOGISTIC SUPPORT PLAN
15	G-AIB	G-ENE, FLP, TES	CONDUCT LOGISTIC SUPPORT PLANNING
16	G-AIB	G-APS, ENE, TES	PROVIDE LOGISTICS INPUT FOR SOURCE
			SELECTION PLAN
			FINANCIAL MANAGEMENT
17	G-AIB	G-APA	DEVELOP AND MAINTAIN FINANCIAL PLAN
18	G-AIB	G-APA	ADMINISTER PROJECT AC & I FUNDS
19	G-AIB	G-ENE, OIO, TES	SUBMIT AC&I RCP'S
20	G-OIO	G-OCU	SUBMIT OE RCP'S
21	G-OIO	G-OCU	PREPARE OFCO'S
			QUALITY ASSURANCE MANAGEMENT
22	G-AIB	G-AQA	CONTRACT DOCUMENTATION REVIEW
			PERSONNEL AND TRAINING PLAN
23	G-OIO	G-AIB, CPA, ENE,	PREPARE TRAINING CONCEPT
		G-FLP, FP, K-1,	
		G-OAV, OCU, ODO,	
		G-OP, P-1, PTE,	

NO.	RESP. DIV.	ASST. DIV.	TASK/ACTIVITY
24	G-AIB	G-CPA, ENE, TES,	ESTABLISH MANNING LEVELS
		G-FP, K-1, OAV,	
		G-OCU, ODO, OIO,	
		G-OP, P-1, PTE,	
			LIFE CYCLE COSTING
25	G-AIB	G-OIO	LIFE CYCLE PLANNING
26	G-AIB	G-OIO	DETERMINE OPERATIONAL COSTS
27	G-ENE	G-ECV, ENE-5, TES;	DEVELOP MAINTENANCE AND SUPPORT COSTS
		ICP's	
			RELIABILITY AND MAINTAINABILITY
28	G-ENE	G-AQA, ENE-4, TES	RELIABILITY AND MAINTAINABILITY
			INTEGRATED LOGISTIC SUPPORT REQMTS
29	G-AIB	G-APS	PREPARE ILS PLAN FOR DETAIL DESIGN SHIP
			CONSTRUCTION PHASE
30	G-FLP	G-AIB	PREPARE MATERIAL SUPPORT PLAN
31	G-ENE	G-ENE, TES	PREPARE MAINTENANCE CONCEPT
32	G-ENE	G-ENE-4, TES	DETERMINE LSA CANDIDATES
			MAINTENANCE
33	G-ENE	G-ENE-4, TES	DEVELOP PMS REQUIREMENTS
			SUPPORT AND TEST EQUIPMENT
34	G-TES	G-APS	PREPARE ELECTRONICS TEST EQUIPMENT
			ALLOWANCE LIST
35	G-ENE	G-APS	PREPARE ENG/OTHER TEST EQUIPMENT
			ALLOWANCE LIST
36	G-ACS	G-AQA, ENE	ADMINISTER GFE CONTRACTS
37	G-AIB	G-ACS	COORDINATE GFE/GFI
38	G-TES	G-FLP	TRACK AND MONITOR ELEX GFE
39	G-ENE	G-FLP	TRACK AND MONITOR OTHER GFE
			SUPPLY SUPPORT
40	G-FLP	G-ENE, TES; ICP's	STAGE STOREROOM ITEMS
41	G-AIB	G-ENE, TES	DETERMINE GFE AND GFI
42	G-FLP	G-AIB	PREPARE PIR ALLOWANCE LISTS
43	G-FLP	G-ODO	SMALL ARMS ALLOWANCE
44	G-FLP	G-ODO	SMAL ARMS AMMO ALLOWANCE
45	G-FLP	G-NSR	NAVIGATION CHARTS
46	G-FLP	RIO	MEMORABILIA LIST
47	G-FLP	G-ENE, KMA, OIO	GENERAL USE CONSUMABLE LIST
		G-TES	
48	G-FLP	G-ENE, TES	TECHNICAL MANUAL LIST
49	G-FLP	G-CMA	ADMIN DIRECTIVES
50	G-FLP	G-AIB	NAV LOGS, ADF
51	G-FLP	G-KMA	MEDICAL ALLOWANCE LIST

NO.	RESP. DIV.	ASST. DIV.	TASK/ACTIVITY
			SUPPLY SUPPORT (CONTINUED)
52	G-FLP	G-ACS	PROCURE GOVERNMENT FURNISHED EQUIPMENT
53	G-FLP	G-TES; ICP's	PREPARE ERPAL
54	G-FLP	SICP	PREPARE A BASELINE CALMS
55	G-FLP	G-ENE, TES; ICP's;	FIT OUT PLANNING
		RIO	
56	G-ENE	G-APS; ICP's	DETERMINE REPROCUREMENT DATA REQUIREMENTS
			(ENGINEERING REQUIREMENTS)
57	G-TES	G-APS; ICP's	DETERMINE REPROCUREMENT DATA REQUIREMENTS
			(ELECTRONICS REQUIEMENTS)
			FACILITIES
58	G-OP	G-ECV, OCU, OIO	PREPARE HOMEPORT RECOMMENDATIONS
59	G-ECV	G-ENE, FLP, OIO,	DETERMINE NEW OR MODIFIED FACILITIES
		G-OP; ICP's	REQUIREMENTS
60	G-E	G-ECV	PREPARE FACILITY COST ESTIMATE
			PERSONNEL AND TRAINING
61	G-OCU	G-ENE, OIO, PTE,	PREPARE TRAINING PLAN
		G-TES; ICP's	
62	G-PTE	G-ENE, OCU, OIO,	EXECUTE TRAINING PLAN
		G-TES	
63	RIO	G-ENE, OIO, TES	CONDUCT ACCEPTANCE TRIALS
64	G-P-1	G-PE, PO	ESTABLISH PRE-COMM CREWS
65	G-OIO	G-OCU	PREPARE COMMISIONING OFCO
66	RIO	G-OCU, OIO	CONDUCT PHASE 1 PRECOM
67	G-OIO	G-OCU	CONDUCT PHASE 2 PRECOM
68	G-OIO	G-OCU	CONDUCT PHASE 3 PRECOM
69	RIO	G-ENE, OIO, TES	COMMISSION PIR PROJECT
70	G-OIO	G-ENE, OCU, TES	DEVELOP CUTTER SHAKEDOWN PLAN
71	G-OIO	G-ENE, OCU, TES	CONDUCT PIR PROJECT SHAKEDOWN

TASK DESCRIPTIONS

A. Purpose. The following task descriptions are provided to generally identify each task necessary to complete the PIR Project and to describe its key elements. The organizational elements responsible for completing the tasks are designated in the Task Responsibility Chart, enclosure (1). Where needed for completion of a task, assistance from other organizational elements is indicated. These descriptions are not intended to be complete scope descriptions of each project task. Headquarters Division Chiefs and Task Leaders will work with the program manager (PM) to better define the scope of each task, develop work packages and set milestones, and develop CPM charts as required.

PROJECT MANAGEMENT

1. Develop And Maintain Project Management Plan (PMP). Prepare comprehensive plan for overall management of the Polar Icebreaker Replacement (PIR) Project. The basic plan and proposed changes will be prepared by the PM and submitted to the Commandant (G-A) for approval. PMP amendments changing project activity, responsibility, or adding new activities will be coordinated with the responsible organizational elements.

2. Prepare Concept of Operations. Prepare operating philosophy for new Polar Icebreakers. This concept includes sufficient detail such as AFHP days, maintenance days, operational days to allow for proper logistics support planning. This concept will be included in the ILSP.

3. Submit Status Reports. Periodic written status reports will be submitted as detailed in the Monitoring, Control and Reporting Section of this PMP. Reports may be originated at any level but must be signed at headquarters division level before submission to the PM. All status reports to the PM shall be prepared and submitted prior to the close of business on the fifth working day of the month following the report period. Copies of all project related correspondence shall be provided to the PM in addition to regular status reports.

4. Present Project Status Reviews. The PM will present bi-monthly project status review to Commandant G-A summarizing project activity for the period. Headquarters Office and Division Chiefs and OST representatives will be invited to project briefings.

5. Maintain Project CPM Database/Network. The PM will construct and maintain a CPM database reflecting project activities. Computer prepared graphic representations will be periodically prepared by the PM to illustrate progress and status. Graphics will also be available to support planning efforts including recovery planning and alternative approaches to problem solving. Organizational elements responsible for identifying and executing project tasks will be consulted for assistance in establishing the CPM database. Task Leaders for tasks over three months and others as specifically directed by the PM shall prepare a CPM database and chart for task activities.

6. Update Sponsor's Requirements Document (SRD). The SRD provides current operational requirements. The ship will be designed to meet those requirements. Because of the potential schedule and cost impacts of changes to the project scope, all proposed SRD changes shall be forwarded to Commandant G-A for approval after review by the PM.

SHIP ACQUISITION PLAN

7. Develop Program Schedule for Contract Award and Construction. Prepare schedules required to establish an orderly and systematic procurement program. Submit Acquisition paper for OST approval as required by current directives.

CONFIGURATION MANAGEMENT

8. Provide Engineering Technical Support. Provide technical support to the PM for project issues. Technical support includes performing specific project tasks in area of technical expertise, providing consultive guidance and in some cases establishing C.G. Policy within a technical discipline.

9. Establish Configuration Management Plan. Develop and maintain a configuration management plan.

10. Conduct Contract Modification Review. The PM will control contract modifications in accordance with the configuration management plan. The PM will chair an ad hoc panel, which includes Commandant (G-ACS) and a procurement law specialist to review proposed modifications and make recommendations to Commandant G-A. Approved contract modifications will be sent the RIO for implementation.

TECHNICAL DATA MANAGEMENT

11. Determine Technical Data Requirements for the PIR Project Technical Library.

12. Determine Technical Logistics Documentation. Determine requirements for contractor prepared drawings and associated lists. Including deliverables, such as master plans, original drawings and specifications.

SOURCE SELECTION PLAN

13. Develop Source Selection Plan. Prepare and maintain a Source Selection Plan for OST approval.

INTEGRATED LOGISTIC SUPPORT MANAGEMENT

14. Develop Logistic Support Plan. Prepare and maintain a Logistic Support Plan (LSP). The Plan will contain the Maintenance Philosophy, Training Philosophy, Pipeline Training Plan and Materiel Support Plan, and Concept of Operations in addition to other policy and planning concepts needed to fulfill logistic support for the PIR's. Navy support for logistics planning will be coordinated with SLM as needed.

15. Conduct Logistic Support Planning. Logistic support planning includes those management and technical activities necessary to define, develop, acquire, and provide the required support. It encompasses the preparation of the Outfitting Plan, establishment of allowance lists and preparation of the Logistic Support Plan (LSP). The LSM will be assisted in support planning efforts by the Logistic Support Coordinators (LSC) representing the program, facility, and support managers. Navy support for logistics planning will be coordinated with Navy Ship's Logistic Manager (SLM) as required.

16. Provide Logistics Input for Icebreaker Source Selection Plan. Determine logistic requirements that contractor must address in the Request for Proposal(RFP).

FINANCIAL MANAGEMENT

17. Develop and Maintain Financial Plan. Prepare, maintain and execute a financial plan adequate to support the approved budget and to provide management information regarding the project. Enclosure (4) of the PMP contains the details regarding financial planning and preparation of obligations plans.

18. Administer Project Acquisition, Construction & Improvement (AC&I) Funds. Project funds will be administered as described in enclosure (4) of this PMP.

19. Submit AC&I Resource Change Proposal (RCP). Prepare and submit RCP's for project AC&I funds in accordance with the financial plan and current directives.

20. Submit OE RCP's. Prepare and submit RCP's for funding follow on operations and support including ship's crews.

21. Prepare Operating Facility Change Order (OFCO). Prepare and submit OFCO's to establish new ships and shore facilities as operating facilities of the Coast Guard with funding and staffing base.

QUALITY ASSURANCE MANAGEMENT

22. Contract Documentation Review. Each contract shall be reviewed for enforceability, ambiguities, and conformance to Coast Guard Policy.

PERSONNEL AND TRAINING PLAN

23. Prepare Training Concept. Prepare and maintain a training concept for design and support planning. The training requirements will take into consideration the equipment configuration, manning levels, operational requirements, readiness requirements and maintenance concept. The training requirements will be included in the LSP.

24. Establish Manning Levels. Conduct analysis and crewing model studies to determine manning level required to accomplish operational missions, maintain and support the new icebreakers in condition of appropriate readiness. Analysis must also consider operation and support of the installed equipment configuration. Prepare supporting documentation and pursue through decision-making process to final authorization of manning from Coast Guard budget process; reconciling requirements with other Coast Guard programs.

LIFE CYCLE COSTING

25. Life Cycle Planning. Establish the projected service life, time between overhaul or calibration/qualification, and the basis for computing operations hours, operating cycle and failure rates for shipboard systems.

26. Determine Operational Costs. Prepare cost estimate and justification for operations and personnel follow on for ships and shore facilities.

27. Develop Maintenance and Support Costs. Prepare cost estimate and justification for maintenance and support follow on for ships and shore facilities.

RELIABILITY AND MAINTAINABILITY

28. Reliability and Maintainability (R&M). Determine the reliability and maintainability requirements for new icebreakers. This includes Mean Time Between Failure (MTBF) and Mean Time to Repair (MTTR) for selected equipments and systems. Develop major overhaul planning factors. Ensure that the appropriate measures for a successful M&R plan are included in the contract specification.

INTEGRATED LOGISTIC SUPPORT REQUIREMENTS

29. Prepare ILS Plan for Detail Design Ship Construction Phase. Identify milestone tasks and activities. Coordinate completion of all sub-tasks generated by the PMP.

30. Prepare Material Support Plan. Prepare and maintain a Material Support Plan that addresses actions required to provide supply support for the ships, equipment, and systems. The Material Support Plan also includes the Supply Logistic Support Plan which provides guidance and assigns responsibilities for the material logistic support of the project. The Material Support Plan will be included in the Integrated Logistic Support Plan which provides guidance and assigns responsibilities for the material logistic support of the PIR project.

31. Prepare Maintenance Concept. Prepare a maintenance concept which will guide and influence design decisions. The maintenance concept is part of the Logistic Support Plan. The maintenance concept impacts material allowances, manning levels and crew training. Describe the general concept of maintenance, consisting of preventive, corrective, and facility maintenance designated for accomplishment by shipboard personnel. Define the factors influencing maintenance and these decisions: i.e; environmental conditions, resource limitations or operational requirements. Identify the maintenance efforts to be performed by the contractor.

32. Determine LSA Candidates. A logistic support analysis (LSA) will be performed in accordance with MIL-STD-1388-1A, and in format of MIL-STD-1388.2A modified as necessary to support the logistic requirements for specified shipboard systems, especially equipment and machinery unique to the PIR design. The LSA will be sufficient in scope and depth to provide baseline logistic support data (including maintenance requirements, supply support, support and test equipment, technical data, support facilities, and personnel and training data).

MAINTENANCE

33. Develop Preventive Maintenance System (PMS) Requirements. Prepare and maintain PMS for preventative maintenance on the PIR.

SUPPORT AND TEST EQUIPMENT

34. Prepare Electronics Test Equipment Allowance List. Determine requirements for electronics test equipment based on the Icebreaker Replacement electronics suite.

35. Prepare Engineering/other test equipment. Determine requirements for engineering/other test equipment based on the Icebreaker Replacement machinery.

36. Government Furnished Equipment (GFE) Contracts. Identify and perform those activities required to award contracts and administer these contracts to procure the GFE in support of the prime contracts.

37. Coordinate Government Furnished Equipment (GFE) and Government Furnished Information (GFI). Perform those activities necessary to assure the timely provision of all GFE and GFI to support the requirements of the Prime contracts. GFE and GFI includes commercially procured items as well as the Navy furnished equipment and information.

38. Track/Monitor Electronic GFE. Assist in tracking the electronics GFE/GFI through the Navy equipment management system and commercial contracts until the GFE/GFI is delivered to the contractors. Monitor equipment condition and completeness problems as they arise and take timely corrective action to support the requirements of the prime contracts.

39. Track/Monitor Ordnance, and HM&E GFE. Track the ordnance and hull, mechanical and electrical (HM&E) GFE/GFI until the equipment or material is delivered to the contractors. Monitor equipment condition and completeness problems as they arise and take timely corrective action to support the requirements of the prime contracts.

SUPPLY SUPPORT

40. Stage Storeroom Items. Inventory, sort, and procure to reconcile storeroom items with Electronics Repair Parts Allowance List (ERPAL) and Combine Allowance for Logistics Maintenance Support (CALMS). Stage material for onload in accordance with the Outfitting Plan. Coordinate the Post Delivery retro-fit.

41. Determine GFE AND GFI. Determine and procure Government Furnished Equipment (GFE) and Government Furnished Information (GFI) to be provided to the shipbuilder under the contract.

42. Prepare PIR Allowance Lists. There are several classes of material that are not addressed in other specified allowance lists. These are:

43. Small arms allowance.

44. Small arms ammo allowance.

45. Navigation Charts.

46. Memorabilia List.

47. General Use Consumable List (GUCL).

48. Technical Manual List.

49. Administrative Directives, Publications and Forms.

50. Navigation Logs--Magnetic Compass, ADF, Etc.

51. Medical Allowance List.

52. Procure Government Furnished Equipment (Coast Guard purchased). Perform those activities required to procure the Government Furnished Equipment (commercially purchased) to be provided to the Icebreaker Replacement contractor.

53. Prepare a Baseline Electronics Repair Parts Allowance List (ERPAL). Prepare and maintain a ERPAL for the new icebreakers. Navy support for logistics planning will be coordinated with Navy Ships Logistic Manager (SLM), NAVSEA 913B.

54. Prepare a baseline CALMS. Prepare and maintain a combined CALMS for each new icebreaker. Navy support for logistics planning will be coordinated with Navy Ships Logistic Manager(SLM), NAVSEA 913B.

55. Fit Out Planning. Perform all functions necessary for the transportation of material to the onload site; place material onboard; perform inventory; develop shortage list; take follow-up action on shortages.

56. Determine Reprocurement Data Requirements (Engineering Requirements). Determine the data necessary for the procurement of spare and repair parts which will be stocked onboard the cutter and at the ICPs.

57. Determine Reprocurement Data Requirements (Electronics Requirements). Determine the data necessary for the procurement of spare and repair parts which will be stocked onboard the cutter and at the ICPs.

FACILITIES

58. Prepare Home Port Recommendations. Evaluate the alternatives and recommend home port locations to the PM who will seek Commandant approval. Prior to determination of facility assignment and for contingency purposes, all existing facilities which have the degree of capability desired should be considered. If minor modification or update is required those facilities should be so identified.

59. Determine New or Modified Facilities Requirements. If existing facilities are not adequate new facilities will be provided to assure proper support for the new Icebreakers.

60. Prepare Facility Cost Estimate. Provide order of magnitude cost estimate for shore facilities as part of homeport study. Prepare detailed estimate when homeports are selected.

PERSONNEL AND TRAINING

61. Prepare Training Plan. Prepare and maintain a training plan that identifies the tasks and responsibilities associated with crew training. The Training Plan will contain the master training list of formal training for the Icebreaker Replacement crew, the training policy and philosophy for the Icebreaker Replacement class. The training philosophy is provided as enclosure (9).

62. Execute Training Plan. Review/assess sufficiency of existing training courses. Confirm new training requirements. Plan for acquisition of training sources. As necessary, evaluate contractors proposed/conducted training courses. Develop funding requirements.

63. Conduct Acceptance Trials. Schedule, coordinate, and conduct acceptance trials, including final acceptance trail.

64. Establish Precommissioning Crews. Prepare and issue PCS orders to assemble crew in anticipation of commissioning after completion of Icebreaker Replacement. Provisions of the commissioning OFCO, COMDTINST M4700.2 (series), Ship Acceptance Procedures for New Construction and Renovation of Cutters, and the provisions the Training Plan will apply to the timing of PCS orders.

65. Prepare Commissioning OFCO. Prepare the OFCO for commissioning each cutter upon completion of Icebreaker Replacement. Provisions of OFCO to be in accordance with the Shakedown Plan and the Training Plan.

66. Conduct Phase I Precom. Phase I personnel will report to the Resident Inspector's Office as specified in the Commissioning OFCO to assist in the final inspection and check-out of the cutter and its equipment. Provisions of COMDTINST M4700.2 (series), Ship Acceptance Procedures for New Construction and Renovation of Cutters, as well as the provisions of the Shakedown Plan apply.

67. Conduct Phase II Precom. Phase II personnel will report to the cutter's Prospective Commanding Officer (PCO) at the primary crew assembly facility in accordance with the commissioning OFCO. The PCO will establish the precommissioning detail. Provisions of COMDTINST M4700.2 (series), Ship Acceptance Procedures for New Construction and Renovation of Cutters, as well as the provisions of the Shakedown Plan apply.

68. Conduct Phase III Precom. During Phase III, the remainder of the cutter's crew will report to the cutter's Prospective Commanding Officer for training and other preparation for cutter operations. Provisions of COMDTINST M4700.2 (series), Ship Acceptance Procedures for New Construction and Renovation of Cutters, as well as the provisions of the Shakedown Plan apply.

69. Commission PIR. This is the milestone activity for the commissioning of the cutter after the completion of Icebreaker Replacement. The cutter will be commissioned in accordance with the commissioning OFCO.

70. Develop Cutter Shakedown Plan. Prepare a cutter shakedown plan per COMDTINST M4700.2 (series), Ship Acceptance Procedures for New Construction and Renovation of Cutters.

71. Conduct PIR Project Shakedown. The Shakedown Plan will contain the activities occurring during the period from commissioning to the point in time when each cutter is ready for operations. Tests, certifications, exercises, and training during this period.

Status Report: POLAR ICEBREAKER ACQUISITION

Project Task: _____ Reporting Period: _____
(Month/Year)

Responsible Division: _____ Completion Date: _____

Summary of Activity/Accomplishments:

Problem Area/Need for Additional Resources:

Planned Activity Next Month:

_____ _____
Task Leader Signature Division Chief Signature

Copy to:

Financial Plan

1. Objective. The objectives of Polar Icebreaker Replacement (PIR) financial management are to ensure that: adequate financial resources are obtained when required to acquire the new ships, shore support, and operating and support personnel and resources; funds are obligated on time and as authorized; carryover is minimized; an audit trail and historical record is maintained; adequate project resources are acquired; and reporting requirements are accomplished.

2. Planning. The Project Manager (PM) will maintain the PIR financial plan and obligation plan. Financial planning begins with bottom up estimation. Approval and authorization are top down. Budget execution will be at the lowest level and adequate reporting will be provided. The plans will include PM approved AC&I estimates provided by AC&I point account managers. The financial plan reflects the estimated program costs for each fiscal year as well as the anticipated funding requirements for the life of the project. The obligation plan will include the planned obligation estimates for the current and following four quarters and is a consolidation of the planned obligation levels approved for each point account.

   a. The PIR project includes the following cost categories:

      (1) Prime Contracts

         (a) Basic contract
         (b) Approved modifications to basic contracts
         (c) Economic price adjustments(escalation)
         (d) GFE costs

      (2) Related Costs

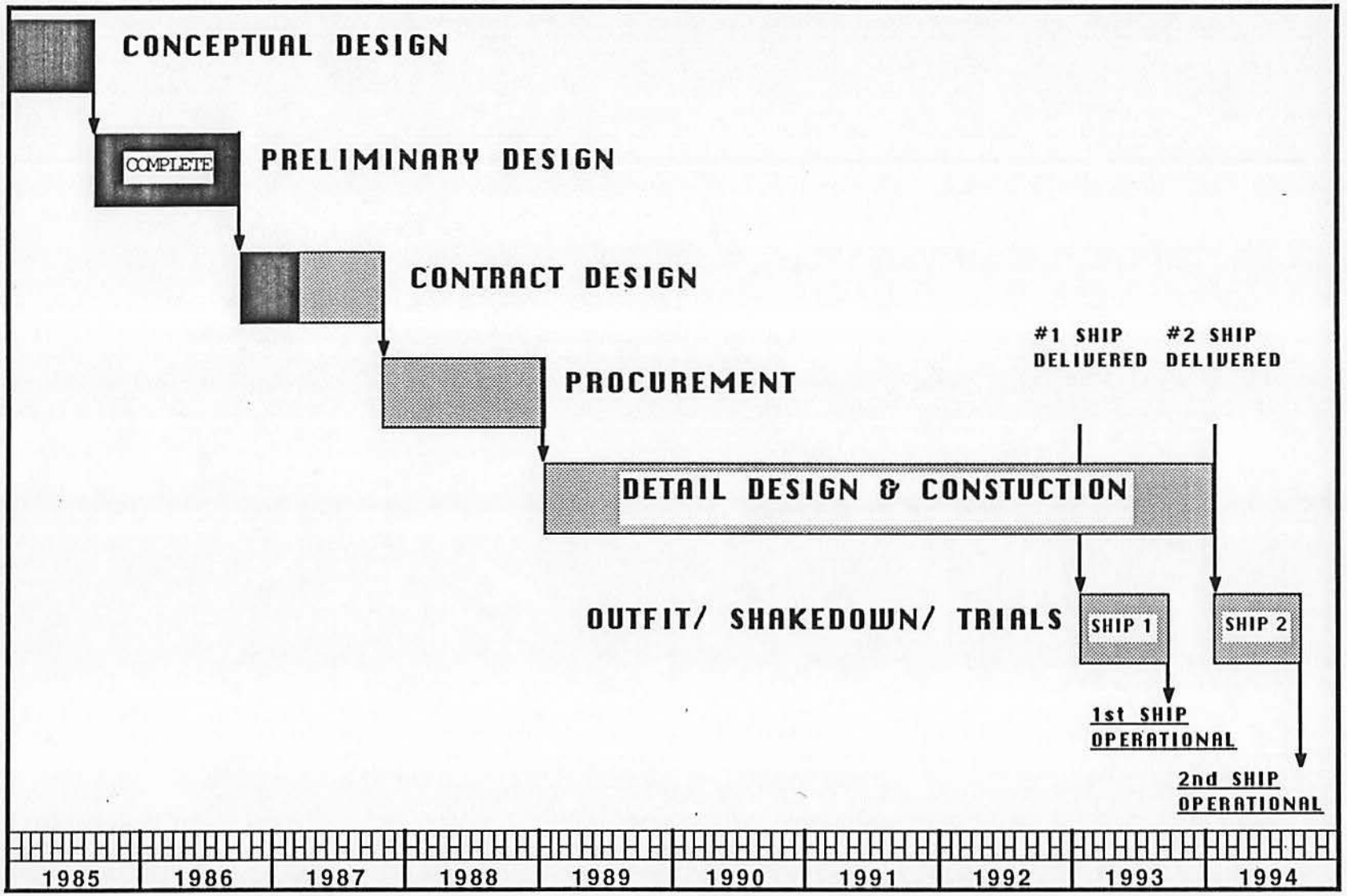
         (a) Contract Administration(RIO)
         (b) Outfit and spares
         (c) Logistic support costs
         (d) Personnel support costs
         (e) Other costs(training, etc)

   b. When Congressional authorization and appropriation of funds are received for a budget year, the PM will chair a PIR project budget meeting with all managers of AC&I point accounts for functional areas requesting funds for that year. The financial plan and obligation plan will be presented and reviewed.

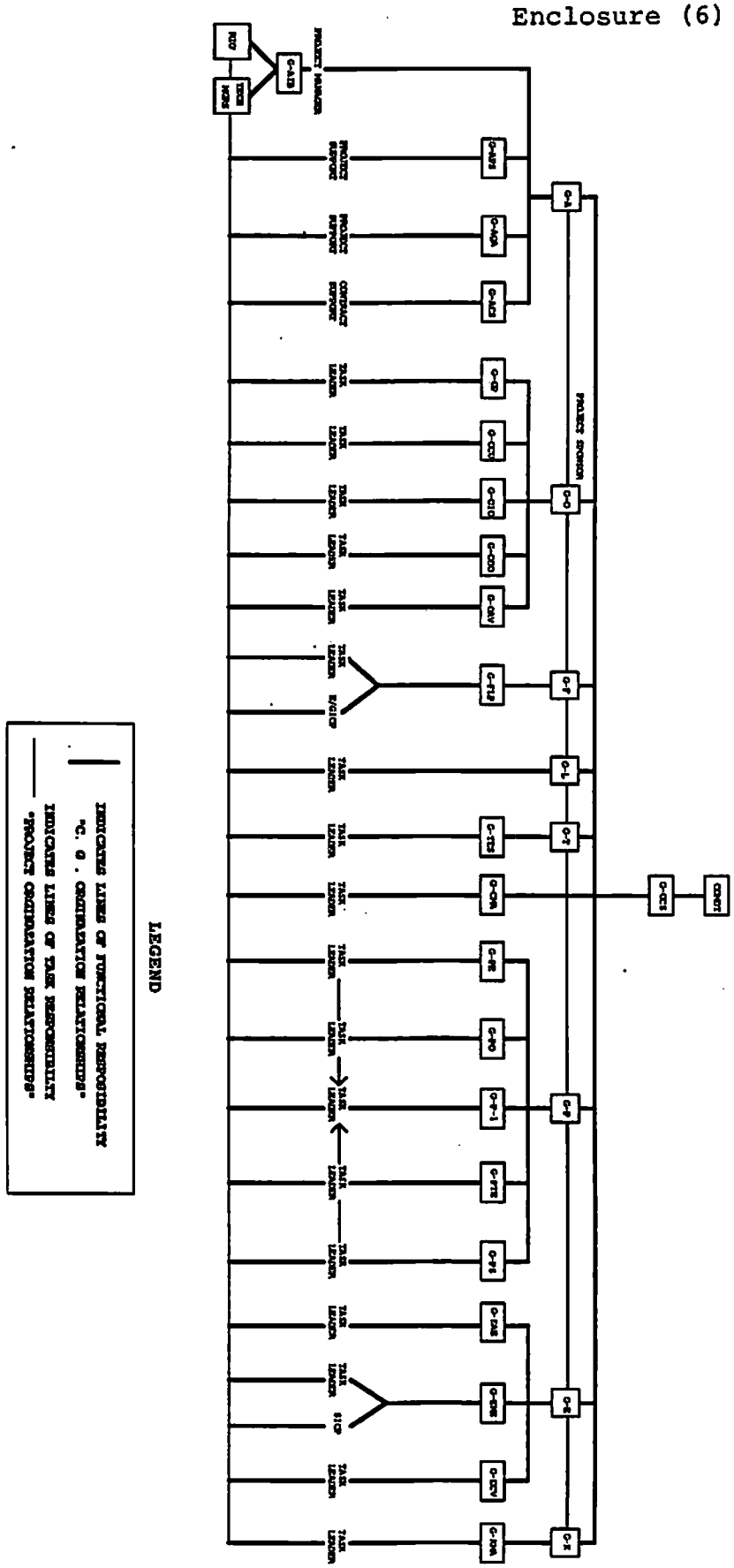
3. Execution. When appropriated, PIR project funds will be transferred to Commandant (G-A) by Commandant G-CCS. Commandant (G-APA-2) will distribute funds to the appropriate functional managers as directed by the PM. Project funds will be allocated to point account managers according to the Manual of Budgetary Administration, COMDTINST M7100.3 (series). Project funds will be distributed for execution based on budget targets approved by the PM. AC&I point accounts will be established so that distribution is made to the lowest practical level including the RIO, ICP's, Headquarters Divisions, etc. for the most efficient execution of funds. Account reconciliation to accounting records is the responsibility of point account managers.

4. Reporting. Each Point account manager will provide a quarterly fund status report to the PM at the close of each fiscal quarter. Reports will be submitted so that the PM receives the quarterly report no later than the fifth working day of the following fiscal quarter. This report will contain the total funds committed and obligated during the quarter, the quarter ending account balance, an obligation plan for the next four quarters and the estimated funding requirements by quarter and by fiscal year to complete the project. Accounting reconciliation is presumed to be as of the latest distributed accounting reports. Obligations will be related to the cost categories in paragraph 2.a. Additional cost categories may be added as appropriate. Sufficient detail will be included to allow the PM to evaluate the planned expenditure. The PM may require amplifying information or reassessment of financial needs as each budget proceeds through successive Coast Guard budget stages. The PM will provide the necessary input for Commandant (G-CCS) to answer all queries from OST, OMB, and Congress on the status of project funds. Fund status will be included in regular project briefings.

MASTER SCHEDULE



Enclosure (5) to COMDTINST M16155.3



POLAR ICEBREAKER REPLACEMENT PROJECT ORGANIZATION

LEGEND

INDICATES LINES OF FUNCTIONAL RESPONSIBILITY "C. O. ORGANIZATION RELATIONSHIPS"

INDICATES LINES OF TASK RESPONSIBILITY "PROJECT ORGANIZATION RELATIONSHIPS"

CONCEPT OF OPERATIONS

1. Objective. The objective of the Concept of Operations is to define the operational parameters used as design criteria. Planning for all aspects of the acquisition project is in direct response to operational requirements. The Mission Needs Statement, Sponsors Requirements Document and Polar Icebreaker Requirements Study amplify operational concepts.

2. Planning. Commandant (G-O) as the program sponsor will define and update operational parameters. Ship design is dependent on firm requirements and changes to requirements will usually cause delays and have associated cost impact. This project is based on the PIRs, MNS, SRD and AP. The following are general assumptions for operation of the new icebreakers:

   a. The replacement polar icebreakers will be operated as multi-mission Coast Guard vessels. They will be employed in accordance with a multi-mission operational concept.

   b. Cutters of the replacement polar icebreaker class will be employed in icebreaking operations in any season in the Eastern Arctic, the Western Arctic and Antarctica.

   c. Arctic missions will include ice escort services for supply vessels providing logistic support to defense installations and bases, and service as scientific platforms for embarked scientists. The U. S. Antarctic program will involve ice escort of cargo ships, the support of scientific research projects, the transport of cargo and passengers, and the support of Antarctic Treaty inspection teams.

   d. Replacement icebreakers may also be called upon to provide support for national security interests in the high latitudes.

   e. Vessels of the class will serve as cold regions research platforms for extended, year-round operations in the Arctic and Antarctic. They will be capable of supporting a wide range of science and engineering disciplines including, but not limited to: marine geology; physical, chemical and biological oceanography; and meteorology.

   f. Expected employment will be 185 days away from homeport (AFHP) each year. Of the 185 AFHP days approximately 41 days will be used for operational support such as fueling, calibration, outfitting and provisioning. The remaining time will be required maintenance in or near homeport.

g. The new icebreakers reliability and maintainability standards require availability for full operations during all scheduled AFHP periods. Full operations 100% of the time is either too costly or not possible. However, multiple engines/shafts and a common buss arrangement will provide full redundancy to allow operations at less than full capability 100% of the time.

h. Homeport decisions must take into account total fleet flexibility to meet all missions.

MAINTENANCE CONCEPT

1. Objective. The objective of the Maintenance Concept is to establish criteria for design considerations that affect the readiness, reliability, maintainability, and supportability of the Polar Icebreaker Replacement (PIR). Changes to these assumptions necessitate design changes and may have cost and schedule impact.

2. Planning. The following working assumptions were used in the design process and outline maintenance concepts:

   a. Life cycle cost is considered in all design decisions to minimize total ownership cost.

   b. Machinery automation will equal or exceed that on board the Polar or Hero class cutters.

   c. Coast Guard personnel (either crew or shore support) are responsible for insuring that all installed equipment receives its required maintenance. User agencies (i.e. NSF, DOD, etc.) will not provide maintenance to permanently installed equipment, but are responsible for the maintenance of specially installed science equipment.

   d. A design goal is to minimize onboard personnel. Accordingly, a significant amount of shoreside support must be made available. A home port study and manning study will form the basis for justification of the final personnel levels and the mix of skills required onboard and ashore to meet support requirements. The manning study will also examine alternatives to minimize onboard personnel. Pipeline training prior to reporting aboard will be considered along with other alternatives to minimize onboard personnel requirements.

   e. The new icebreaker will be clustered if possible. Also, a dedicated shore support in the form of an Ship Support Facility (SSF) or similar organization will be provided. This organization will provide logistics, inport maintenance, and some training support. A preliminary estimate of 45 personnel dedicated to engineering and logistics support are required for two ships. Clustering dissimilar icebreakers or alternatively not clustering the PIR's will result in an increase in the required number shore support personnel.

   f. Personnel levels will be adequate to accomplish the total preventative, corrective, and facility maintenance. The mix of maintenance requirements will be different from the Polar Class. However, the total maintenance hours will approximate that of the Polar Class. A simpler main propulsion plant will yield maintenance savings which are offset by increased auxiliary plant maintenance.

f. (cont'd) Equipment selection and system design decisions will take into account maintenance requirements, to reduce maintenance manhours wherever possible. Preventative Maintenance System (PMS) requirements will be evaluated to identify and maximize requirements that can be performed inport.

g. The estimate of the size of the engineering department in the preliminary manning study is reasonable.

h. Increased number of scientific berths, the amount of weather deck scientific equipment, and the size of laboratory support space will increase facility maintenance requirements over the Polar Class. Increased sophistication of monitoring and control systems will require more electronics support for the engineering plant.

i. The new icebreakers should be homeported near substantial industrial support capable of drydocking them. If facilities are not readily available, the difficulty of contracting for required maintenance and repair is significantly increased. Consideration will be given to homeport selection close to Coast Guard support services.

TRAINING CONCEPT

1. Objective. The objective of the Polar Icebreaker Replacement (PIR) training concept is to establish adequate personnel support to accomplish assigned missions. This requires appropriate training for assigned personnel.

2. Planning. The new icebreakers will have only an essential personnel complement to minimize life cycle cost. This concept alone drives design requirements and many support requirements including funding, training allowance, training aids and scheduling. Accordingly, in most cases crew members must arrive in their assignment capable of performing assigned tasks. A combination of basic rating training "A" schools and follow on specialty training "C" schools will provide technical capabilities. Some personnel will be pipeline trained to meet deployment requirements. In such cases individuals assigned to the new icebreakers will receive training while at their departing unit. If an individual requires training at the departing unit a replacement will be provided before training commences. The new icebreakers will require little special training as a result of technological advances, although, some specialized training in scientific support for computer systems and oceanographic equipment may be required. However, Class A and C schools provide training for equipment with high populations in the Coast Guard inventory. These ships will have a minimum of GFE and the shipbuilder has a great deal of latitude in selecting make and model. Therefore, equipment which represents old/common technology may still be unique to these ships and require special training. Incentives to the shipbuilder for selecting equipment which is already supported (supply support and training) in the Coast Guard inventory will be considered.

3. Execution. Specific training tasks are included in enclosure (1). Responsible headquarters divisions will update tasking as required. In general the program manager, Commandant G-OIO, with the assistance of functional disciplines will develop training requirements. Training plans will be developed for both lead and follow on crew. The program manager will provide the Training Plan and support funding. G-PO and G-PE will assign personnel. G-PTE will coordinate training sources and schedules.