

US COAST GUARD POLAR CLASS ICEBREAKERS

FY 2004 REPAIR PLAN SUMMARY



FY04 POLAR CLASS REPAIR PLAN SUMMARY AND RISKS

- Both POLAR STAR and POLAR SEA are scheduled to deploy on Deep Freeze 2004 due to extreme ice conditions in Antarctica
- POLAR STAR is the lead icebreaker and is due to deploy OOA 01 Nov 2003 and return OOA 15 April 2004
- POLAR SEA will depart around 15 Nov 2003 and return 01 May 2004
- Assumes Two Polar Icebreakers Will Be Required for DF 2005

PLANNED REPAIRS

Both ships return in generally good condition
(one ship having CPP Hubs w/no apparent damage)

- **POLAR STAR:** Primary effort will be the renewal of three of the four main diesel engine blocks in Diesel 2 (MDEs 2A, 2B, 3B. 1B was renewed in 2000) and the center section overhaul (CSO) of #3 SSDG
 - **Schedule:**
 - Block Renewal/CSO. 12 May thru 31 August 2004.
 - Diesel Plant Requalification (load bank w/Engine Signature Analysis). 01-30 September 2004.
 - Underway shakedown, unplanned repairs, mission load out. 01-31 October 2004.
 - Depart on DF05. Second week in November 2004.

PLANNED REPAIRS

Both ships return in generally good condition
(one ship having CPP Hubs w/no apparent damage)

- **POLAR SEA:** Primary effort will be to dry-dock the vessel in order to replace all three propeller hubs with overhauled spares, in addition bearing land repairs will be planned for all three shafts.

- **Schedule:**

- Dry-dock ship, replace propeller hubs and bearing land repairs on all 3 shafts. 26 May~30 September 2004.
- Underway shakedown, unplanned repairs, mission load out. 01-31 October 2004.
- Depart on DF05. First week in November 2004.

CONTINGENCY PLAN 1:

The ships return from the mission with **moderate** CPP/shafting damage to the wing shafts requiring the dry-docking of both ships.

- **POLAR STAR:** Primary effort remains the renewal of the three of the four main diesel engine blocks in Diesel 2. In addition, a one month dry-dock will be added in early fall to replace all three propeller hubs with the accelerated overhaul set that comes off of Polar Sea in early summer.
- **POLAR SEA:** Primary effort will be to dry-dock the vessel in order to replace all three propeller hubs with overhauled spares, in addition bearing land repairs will be planned for all three shafts.
- **NOTE:** This will require an accelerated effort and an estimated additional \$2M. We feel the Polar Phased Maintenance Contract will be an integral part of assisting us in this effort if needed.

CONTINGENCY PLAN 2:

- A catastrophic CPP/shafting casualty (blade loss, shaft bearing damage, etc.) to either ship will make it impossible to have both Polars available for DF 2005.
- All available resources would be diverted to the Polar designated for the 2005 mission to make it ready for sea on time, the other ship would be repaired as time and funding allowed.
- Operational Commander makes decision for a one Polar Deep Freeze and/or sending HEALY as the second icebreaker.

POLAR SLEP STATUS

- **PERFECT STORM Brief Fallout**
 - NSF Brief February 2003
 - CG HQ Flag Brief April 2003
 - National Academy of Sciences Polar Research Board Brief May 2003
 - Science Systems Meeting June 2003
 - CG Commandant Brief July 2003
- **Major Acquisition Realization**
 - Internal CG Process Starting Up
 - MNS & P-ORD Studies

POLAR SLEP STATUS

- Draft SLEP Operational Cost Analysis Received in October 2003
 - Examined 13 Different Polar Icebreaker Based Options to Meet Existing Mission Requirement
 - Determined Operational Cost Effectiveness by Scoring 3 Factors:
 - Measure Of Operational Effectiveness (MOE)
 - Total Ownership Cost (TOC)
 - Reliability Factor (RF)

POLAR SLEP STATUS

- SLEP Operational Cost Effectiveness Results:
 - 60k Integrated Electric Drive Came Out on Top (4 Cat Diesels, 2 LM 2500+ GTRBs)
 - 45k Integrated Electric Drive (4 Sulzer Diesels)
 - New Build



HEALY STATUS

A photograph of the research vessel R/V Healy in a dry dock at night. The ship is illuminated by bright lights, and its name 'HEALY' and the number '20' are visible on the red hull. The ship is positioned in the center of the frame, with various structures and equipment visible on its deck and around the dock. The water in the foreground reflects the lights.

- Dry Dock 05 Nov 03-03 Feb 04
 - Major Science System Projects:
 - Science Seawater System Redesign
 - Science Sensor Precision Survey
 - Acoustic Systems Maintenance
 - A-Frame Pivot Pin Redesign
 - Science Winch Operation Safety Improvements (Sheave Block Pin & ASW Interlocks)
 - Science Winch Info Display on WX Decks
 - DPS Fault Correction & Dedicated Trials