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From: Commander, Operational Test and Evaluation Force
To: Commandant, United States Coast Guard

Subj: UPDATE OF THE 123-FOOT PATROL BOAT (123' WPB) OPERATIONAL ASSESSMENT ANALYSIS (OAA) OF 29 SEP 04

Ref: (a) COMDT COGARD WASHINGTON DC 101705Z Mar 05
(b) COMOPTEVFOR ltr 3980 Ser 76/580 of 29 Sep 04
(c) COMOPTEVFOR ltr 3980 Ser 91/494 of 18 Jul 03

Encl: (1) OAA Update Matrix and Comments

1. **PURPOSE.** Reference (a) requested COMOPTEVFOR to provide an update to the 123' WPB upgrade OAA report (reference (b)).

CAVEAT: This observation does not constitute a formal phase of operational testing (OT), but rather a demonstration in which OT testers are actively involved, providing operational perspective and gaining valuable hands-on familiarity with the system. Data and findings from this observation may be used to supplement formal OT data, provided certain criteria are met. This observation does not resolve critical operational issues (COI) and does not reach conclusions regarding effectiveness or suitability.

2. **BACKGROUND.** COMOPTEVFOR conducted a review and update of the 123' WPB Upgrade OAA, including the supporting command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) and Logistics Information Management System (LIMS) as they applied to both the cutter and the supporting operational and maintenance organizations. Observations were conducted in cutters MATAGORDA, METOMPKIN, PADRE, and NUNIVAK at U.S. Coast Guard Sector Key West and included observations at all immediate supporting organizations. This update period was not planned or coordinated by a program test and evaluation master plan and was not part of the 123' WPB OAA test plan (reference (c)). A separate test plan was not developed for this update. A review of the significant risks and associated recommendations provided in reference (b) was conducted and will provide the Deepwater program with current operational assessment of those significant risks to operational effectiveness and suitability, whose associated recommendations should be implemented prior to operational evaluation (OPEVAL).

3. RISK SUMMARY. The following table depicts the current level of risk assessed to be associated with the successful resolution of COIs prior to OPEVAL. Risk assessment is based upon a comparison of previously reported risks with 123' WPB and associated support system program improvements since completion of the OAA.

COI Assessments	OAA (9/29/04)	OAA Update (4/29/05)	Note
Surveillance, Detection, Classification, Identification and Prosecution (SDCIP)	Red	Red	
Tactics	Red	Red	
Survivability	Red	Red	
Joint Interoperability	White	Yellow	1
Connectivity	Red	Red	
Information Assurance (IA)	Yellow	Red	2
Electromagnetic Environmental Effects (E^3)	Red	Green	3
Reliability	Red	Red	
Maintainability	Yellow	Red	4
Availability	Red	Red	
Logistic Supportability	Red	Red	
Compatibility	Yellow	Yellow	5
Interoperability	Yellow	Yellow	
Training	Red	Red	
Human Factors	Yellow	Yellow	
Safety	Red	Red	
Documentation	Yellow	Red	6

Color codes for OAAs are:

Red – High level of risk identified.
Yellow – Moderate level of risk identified.
Green - Little or no risk identified.
White – Not evaluated or assessed as a result of system immaturity or lack of information.

Notes:

1 Risk increase due to C4ISR system displaying no improvement in obtaining interface with other service/agency systems. There was no capability for track input, sharing, or for email/chat.

2 Risk increase due to decertification of the capability of the C4ISR installation to meet IA requirements on any cutters.

3 Risk mitigation due to TEMPEST certification and continuing resolution of identified discrepancies.

4 Risk increase due to insufficient progress on developing or updating training and certification programs, operating manuals, technical manuals, maintenance procedures, etc.

5 Although outside the scope of this assessment, it appears that the modifications to the 123' WPB may have contributed to the degradation of the structural integrity of the hull and overall compatibility with the operating environment.

6 Risk increase due to continued lack of operational and maintenance documentation despite significant program experience and cutter delivery.

4. RISK UPDATE COMMENTS. Enclosure (1) provides recommendations from reference (b) and the associated risks that provided the foundation for those initial recommendations. The last column of enclosure (1) provides comments resulting from this update period.

5. SIGNIFICANT OBSERVATIONS

a. 123’ WPB

(1) Command and Control (C2). The C2 equipment and associated software packages provided with the modification have not demonstrated the capability to generate a local tactical picture (LTP), contribute to a collective tactical picture, or receive the Atlantic Area managed common operational picture (COP). Interoperability on classified voice circuits was limited to USCG shore stations, cutters, and aircraft. The C4ISR system was not working as designed and the systems were not capable of operating or maintaining a basic capability in accordance with the CONOPS.

(2) LIMS. The LIMS logistics system (including both the ELLIPSE in-port functionality and the Fleet Logistics Management System (FLMS) underway) has had a negative impact on the maintenance and supply functions of the cutters. Of the twelve projected “iteration zero” capabilities, eleven have not yet been provided.

(3) Short Range Prosecutor (SRP) Recovery. SRP recovery evolutions in higher sea states are being conducted without proven or validated procedures and have the potential to be done at levels of risk beyond what is acceptable for personnel and equipment safety. Decrease in communications capability of the SRP and resulting degradation of C2 between the cutter and the SRP impact operational effectiveness and safety during recovery operations.

(4) Documentation. LIMS operating manuals, C4ISR system technical and operating manuals, training and personal qualification program documentation, towing and SRP recovery equipment certifications, and system operating procedures were either not provided or are incomplete.

(5) Situational Awareness. Various new installations on the cutters provided improvements individually. As a collection of standalone capabilities, they included the digital global positioning system, automated identification system, and the infrared camera system. The crews were able to combine some of the individual outputs of

these equipments and obtain an increased situational awareness during patrols. These equipments were not integrated and were not capable of contributing to a networked tactical picture.

b. The following observations and recommendations are deemed significant beyond the 123’ WPB upgrade in that the associated risks may impact other Deepwater program assets, C4ISR and logistics domains, or the Integrated Deepwater System overall.

(1) LIMS/ELLIPSE/FLMS lack of functionality and increased level of effort is currently isolated to the cutters in Sector Key West. The capability to deal with the deficiencies of the system is only possible as a result of tremendous effort by the ICGS on site representative and the District and Sector maintenance organizations. Extension of the LIMS program in its current state to other USCG locations should be carefully considered pending a near complete development and validation of LIMS capability and functionality.

(2) The C4ISR equipment and software installed in the 123’ WPB are initial production iteration installations for all subsequent Deepwater program assets. The inability to generate a LTP and to contribute to the COP or to receive and display the COP need to be resolved by equipment/software grooms, improved maintenance capability, and better training.

(3) The SRP recovery system in the 123’ WPB serves as a bellwether for future design and installations in the national security cutter, offshore patrol cutter, and the fast response cutter. The critical equipment and safe and effective procedures for conducting astern recoveries in higher sea states for both the SRP and the long range interceptor should be developed and proven by an effective and integrated test and evaluation process prior to continued program development.

6. RECOMMENDATIONS. Within the scope of this assessment, I recommend formal and documented validation of correction of deficiencies be conducted for those risks identified in reference (a) prior to conducting the operational test readiness review for OPEVAL. If the major effectiveness and suitability risks associated with the 123’ WPB modification can not be mitigated, continued conversion of operationally capable 110’ WPBs is not recommended. Current mitigation efforts, if not pursued more aggressively, will adversely impact the effectiveness and safety of operations. For those Deepwater program assets who share the critical components

operations, continued program development for those assets should include a comprehensive test program that is structured to provide timely risk assessment and recommendations to the program manager.

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123' WPB OAA Update Matrix and Comments

Recommendation from OAA Report	Risk #	Associated Risk from OAA Report	OAA Report Update Comments
The following must be implemented prior to OPEVAL:		**High Risks associated with prior to OPEVAL recommendations**	
1.1 Develop and publish detailed procedures, including tabular reference, for recovery of the SRP aboard the cutter in all potential sea states from 0 through 4. Procedures should include the recommended ships course relative to the seas and the recommended ordered speed. Procedures should also address the shaft engagement/disengagement considerations (see page 13, par. 4.3.3). (Tactics)	4.3.3	The propeller wash and "rooster tail" of the 123' WPB created a potentially unsafe environment for boat operations in sea states 1 and higher. In order to recover the SRP, the cutter was required to establish a procedure to provide the dynamic conditions at the ramp for each sea state that provided acceptable conditions for boat recovery. Recovery with no way on was difficult in any sea state, as the stability of the cutter and the SRP jet drive maneuverability was dependent on movement. Higher speed meant more control. The 123' WPB was required to clutch in on one or both shafts in order to establish steerageway and obtain the best relative seas. When clutched in, the 123' WPB generated a significant propeller wash which could not be overcome by the SRP, requiring the 123' WPB to declutch its engine(s) just prior to the commitment of the SRP coxswain to a recovery. Timing was critical. The 123' WPB would lose steerageway and provide an unsafe condition if the SRP was not immediately recovered. This process in heavier seas resulted in a smaller time window for the coxswain to make his approach into the ramp, subjecting the SRP to increased propeller wash during recovery. (This may have significant implications for similar recovery processes in the larger cutter classes (WMSL, WMSM, WPC)).	SRP draft recovery procedures were developed by the contractor subsequent to the OAA report. These procedures were generic, untested, and had not been demonstrated by the developer on any of the delivered cutters. None of the four cutters observed during this assessment review period had been provided with a copy of the procedures for review or possible implementation. Each cutter was developing its own unique set of recovery procedures. Some recovery procedures varied significantly in fundamental processes and each with its own unique safety considerations. While there may be more than one set of procedures developed by individual cutters in order to safely recover the SRP in lower sea states, there was significant risk to personnel and equipment because tested and proven procedures were not developed for this evolution in higher sea states. Safety of recovery remains a significant risk to the effectiveness of the stern notch recovery system.
1.2 Test, certify, and provide documentation validating the safety of all components of the SRP recovery system (see page 53, par. 18.2.1.1). (Safety)	18.2.1.1	The SRP recovery line and securing equipment were unsafe. The cutter's recovery line parted during a recovery attempt and the default solution was to "use a larger line" without a tested and certified replacement. Results of a dynamic study and certification were not available identifying the proper size and length of line for SRP capture. The bits that terminate the securing line had no test certification. The winch assembly (drum, line, and recovery hook) had no certification. Upon completion of the SRP recovery, while the weight of the boat stresses the winch line, the on deck line handler was required to attach the securing cable to the prow of the SRP keel which required reaching between the life rails and under the bow of the SRP and the tensioned recovery line in order to attach the securing hook.	There was no standard SRP recovery line on the cutters. Each of the cutters was delivered a different line and there were no specifications provided for line composition, size, or length. Three of the cutters had replaced the line provided by the developer after they had been evaluated by the cutter as unsuitable or unsafe for use. The length and elasticity of the recovery line are critical design parameters impacting the operational loads that will be experienced by the SRP recovery system components. Risks associated with the large forces generated during SRP recovery compounded by the variation in recovery equipment configurations remain high. None of the bits that are used to recover the SRP had been certified for the function they are performing.
1.3 Replace the prescribed 4-inch nylon tow line (breaking strength of 38,400 lb) on the 123' WPB with a tow line of breaking strength below the safe working load of the tow bit (currently 14,400 lb). This is essential to eliminate the reality of bit failure before line failure (see page 53, par. 18.2.1.3). (Note that	18.2.1.3	The tow bit static load test report certified a safe working load which was less than the safe working load of the tow line. This is a significant safety hazard as the bit is subject to failure before the line.	There were three different sized tow lines provided to four of the cutters, each one with a breaking strength that significantly exceeds the safe working load of the towing bit. Two of the tow lines have a breaking strength that is over twice the 150% static test load of the towing bit. There is no documentation provided to the cutters that provides the static and dynamic forces expected to result from a 500 long ton tow that will be transferred to the unusually high tow post and taff railing. The potential heeling moments and

CGC METOMPKIN was provided with a 5-inch tow line of 60,000 lb safe working load.) (Safety)			stability documentation was not available for cutter use and there was no certification data for any of the towing tackle. This remains a significant safety issue.
1.4 Require the immediate installation of equipment, software, security, and certifications necessary for implementation, testing, and operation of the COP. This is a significant increase in advertised capability that has not been demonstrated after four deliveries (see page 11, par. 3.3.1). (SDCIP)	3.3.1	The sensor suite equipment (including receivers, processing units, and display equipment) was installed but was not delivered by the contractor in a configuration capable of providing a COP. The first two cutters of the 123' WPB class were observed during this test period and were delivered without a secure communications capability or the authority to operate via tactical circuits and were in the same condition 3 months after delivery. The cutters were severely restricted in their capability to conduct SDCIP in accordance with the CONOPS. As delivered, they were limited to use of generic on-board sensors. The new 123' WPB integrated sensor suite was designed to have the capability to provide a significant level of tactical awareness to the 123' WPB crew. The complete sensor suite has an undemonstrated potential for significant capability. It was determined that it may not be possible to effectively employ the suite due to the physical location of equipment and the resulting modifications required of watch stander responsibilities in order to support the equipment.	The equipment and software designed for generation of a local tactical picture (LTP) and contribution to and display of a common operational picture (COP) had been installed and loaded in each cutter. However, the installation had not been groomed for operations and was unable to be certified by SPAWAR. There still was no authority to operate the required C4ISR systems and the COP was not available in the cutters. There were no cutters capable of demonstrating the ability to generate a LTP or that could receive and display a COP. The inability to provide input to and receive a COP in accordance with the CONOPS remains a significant risk. Limited connectivity was demonstrated one time on one cutter, but this was conducted as a focused and dedicated proof of concept requiring significant effort and time. While there was limited equipment familiarity training provided at delivery, there had been no training provided that established a baseline of operator proficiency.
1.5 Resolve the reliability and availability of the modifications to the 123' WPB systems, including the C4ISR equipments and network, logistics support system, and the SRP recovery system, to reduce or eliminate the impact on overall cutter availability. The lack of a functioning C4ISR system, a reliable SRP and SRP recovery system, and a reliable logistics support system has the potential for significant impact on not just cutter, but Group/Sector availability to respond to mission tasking (see page 36, par. 12.3.1). (Availability)	12.3.1	The inability of the 123' WPB and its new systems to be ready for test event tasking provides a significant risk to the cutter being supportive of single asset or overall system readiness for real world mission tasking. The reliability and readiness of the various equipments and software supporting the C4ISR, logistics system, and the SRP and its recovery system contributed to an overall lack of availability of the 123' WPB.	The reliability and availability of C4ISR equipments and software applications for both C4ISR and LIMS systems continued to be significant in the lack of overall cutter availability to perform missions in accordance with the CONOPs. During installation grooms, significant software instability required frequent reboot which was very time consuming. When on station, mission performance continued to be limited by unreliable and unavailable software systems and certifications. Even in its limited state of functionality, the LIMS functionalities embedded in ELLIPSE and FLMS were unable to be manipulated by the crews due to availability or deficiencies in system operation manuals and a lack of operator training. SRP and recovery system component reliability and availability displayed some improvement. The cutters were generally capable of meeting mission sortie and on station requirements, although they were significantly limited in their effectiveness by operational speed and sea state restrictions imposed as a result of structural defects, which could be attributed to the hull modifications.

1.6 Obtain damage control plates and stability diagrams, as well as the documentation and certifications that the cutter is capable of handling potential upsetting forces that may be encountered during operations. Those forces include the pulls applied to the elevated tow bit and the resulting moments towards instability during the static and dynamic forces applied by a 500 ton tow, and the potential moments encountered with the addition of the weight of 150 migrants distributed across the main deck in a standing position (see page 54, par. 18.2.1.5). (Safety)	18.2.1 .5	There were no stability calculations, plans or damage control plates available to validate the stability of the 123' WPB in the following situations:- response to the lateral force potentially applied to the elevated tow bit and the resulting moment towards instability during the static and dynamic forces applied by a 500 ton tow. - response to the additional weight of 150 migrants on deck for 24 hours while in sea state 3 or higher. Partial deck loading was conducted pier side with 75 personnel on the main deck which had obvious impact on cutter trim and list conditions. During the test period, all 75 personnel were shifted to the right of centerline which resulted in a 12 degree list on the cutter while pierside.	Damage control plates and stability documentation have not been provided to the cutters. The stability and loading data report generated by the shipyard did not specifically address the stability impacts of a 7 foot high towing point nor the impact of 150 migrants on the main deck. Interpolation of diagrams included in the stability and loading data report did not provide the detail required for operational decisions that will result in significant impacts on shifts in the center of gravity.
1.7 Relocate the SRP recovery winch so that it is not subject to impact from the SRP upon recovery and subsequent loss of capability (see page 18, par. 5.5.1). (Survivability)	5.5.1	The impact of the SRP into the recovery winch could put the winch out of commission. Should this occur, the recovered SRP will be secured by the recovery line but the SRP stern will extend beyond the length of the ramp and the ship's stern door will not be able to be closed. The SRP can not be secured in the ramp without winching it in from the recovered position and there is no back up winch system.	The winch remained susceptible to being struck by the SRP during recovery and had been rendered inoperable at least once on each of three cutters. One cutter had reduced the risk of winch strike by lengthening the SRP recovery line which captured the SRP further away from the end of the notch and the winch mounting location. However, this modified procedure resulted in the SRP being in a captured condition while not completely contained in the notch of the ship with the increased potential of the SRP coming "alive" in the notch with the right sea condition. The winch was required to retrieve the SRP into the notch rather than serving as the final few feet of the securing process. Documentation certifying that the winch is rated or designed for this purpose was not available.
1.8 Eliminate the potential for electrical shock underneath the bridge console (see page 56, par. 18.2.2.9). (Safety)	18.2.2 .9	The video recorder operator on the bridge was subject to electrical shock when accessing the computer mouse from its storage location inside the ship control console via an access panel.	This risk has been eliminated by redesign of the installation.
1.9 Install a second egress for main deck berthing and the electronics work spaces. The condition of a single egress from both situations could be corrected by installation of escape scuttles to the main deck (see page 54, par. 18.2.1.6). (Safety)	18.2.1 .6	A single point of egress from berthing and working spaces is a significant survivability and safety issue. There are two such instances on the modified 123' WPB. There is only one egress route from the main deck berthing spaces (CO, XO, and three other staterooms). An internal fire on the main deck blocking the ladder to the bridge would trap personnel in their staterooms. A second instance is from the COMSEC and electronics working spaces aft. Escape is not possible in the event of an electronics or engine room fire which restricts egress through the forward part of the electronics work space. (Uncorrected from COMOPTEVFOR letter of concern, reference (e).)	Unchanged. Recommend USCG validate the safety requirement for secondary egress route from berthing and working spaces to the main deck.

1.10 Obtain TEMPEST and COMSEC certifications for all cutters. Require certifications prior to acceptance of future cutters, including crypto installation, software load, and authority to operate for all equipments (see page 22, par. 7.11.1.1). (Connectivity)	7.11.1 .1	The complete C4ISR suite was either not functioning or the functionality was inaccessible due to installation faults, COMSEC problems, or incomplete documentation/training. The identification, friend or foe (IFF) equipment was not functional. MILSATCOM was not available as the ARC-210 had TEMPEST problems and was not programmable. The F77 primary underway INMARSAT data path and the Coast Guard data network (plus) (CGDN+) were not available due to an expired interim authority to connect (IATC). There was no SIPRNET path since the cutter did not meet TEMPEST and COMSEC requirements and there was no IATC. MILSATCOM voice communications were not available because a FORTEZZA card was not loaded after cutter delivery.	TEMPEST and COMSEC certifications are now being conducted satisfactorily within a few months after delivery. Additionally, equipment operational problems have been corrected for IFF, MILSATCOM, and SIPRNET installations.
1.11 Verify the ability of the networks architecture to provide security to all classified information prior to cutter delivery/acceptance (see page 26, par. 8.21.1). (Information Assurance)	8.21.1	The inability of the cutter to pass TEMPEST and to verify secure communications operational capabilities made it impossible to verify the network's capability of securing sensitive information.	Defense Information System Agency (DISA) information assurance security standards were not able to be achieved. As a result, the cutters are not being granted the required authority to operate.
1.12 Develop the tactics and associated checklists for the effective launch of the SRP for all mission requirements in the CONOPS (see page 13, par. 4.3.1). (Tactics)	4.3.1	There were no procedures for SRP launch or associated operating tactics developed or published for the cutter to support the mission requirements of the CONOPS. Although the crews of the two delivered cutters were developing their own procedures for various sea states, the design concept for a stern launch in support of various mission scenarios had not been operationally validated by the developer prior to delivery. The lack of a proven process provides high risk to the safety of the crew while experimenting with options for boat operations.	While SRP recoveries remain a significant risk, the tactics and procedures for SRP launches, although not specifically developed, presented a less severe risk to operational effectiveness of the 123' WPB. Numerous launches of the SRP in many operational situations have demonstrated that the launching procedure is relatively uncomplicated and safely executed when positive control is properly exercised by the bridge watch team and the fantail. Documented procedures and checklists for SRP launches in all sea states are still recommended.
1.13 Resolve access deficiencies with ELLIPSE and validate software and system performance on all delivered cutters. Require program/contractor validation and demonstration of FLMS and ELLIPSE software and system performance prior to acceptance of all future cutters, including the interface with the shore and deployable tool sets (see page 31, par. 10.4.1.1). (Reliability)	10.4.1 .1	The ELLIPSE logistics management program was delivered to the cutter with serious access deficiencies. Crew members, working with the Integrated Coast Guard System (ICGS) site representative, were able to resolve access and password discrepancies. However, the capability to display a common product structure that combines legacy and IDS data was not demonstrated. Configuration of the on-board asset by feeding information from maintenance and inventory software was not demonstrated. Interface with the shore and deployable tool sets has not been demonstrated.	LIMS software is installed on all cutters but is unable to provide the required functionalities, either in port with ELLIPSE or underway with FLMS. ELLIPSE capabilities were limited to work order generation and shore side PMS. This is only about 10% of the twelve projected "iteration zero" ELLIPSE system capabilities. The following ELLIPSE functionalities were not able to be demonstrated: shipboard PMS (due to the lack of the scheduling module being available), financial tracking, report generation, configuration management, parts requisitioning, man-hour tracking, inventory management, work order alert notification, MILSTRIP processing, PHS&T management and purchasing management. FLMS operational functionality could not be demonstrated by any of the cutters.
1.14 Resolve the inability of the cutters to create logistics work orders via the ELLIPSE system. The capability to conduct inventory management, maintenance scheduling, and finance interfaces must also be resolved (see page	10.4.1 .3	The capability to push mobile requisitions to the operations support center was demonstrated with limited success. During the test period, only one requisition was successfully processed. The crew has reverted to the casualty reporting process to fill requisitions for critical parts. The system did not demonstrate the capability to conduct inventory management, maintenance scheduling, and finance interfaces. The system was able to	All four cutters were using ELLIPSE to generate work orders on their local terminals, but manual intervention was required at the next level (Sector, District, or ICGS site rep) to make documents visible on the shore maintenance side of the system. All four cutters observed in Key West remained unable to conduct inventory management and maintenance scheduling using ELLIPSE. They were also

32, par. 10.4.1.3). (Reliability)		generate internal work orders after several days of on-the-job training by the site representatives; however, those work orders are not available to be accessed within the ELLIPSE system.	unable to track any financial data that is a requirement for not only Deepwater supported parts, but for legacy equipment as well. Also, in order to print a work order, the text had to be copied to a word document and then printed, which was an extra step that added time to the work day when compounded by each cutter and their individual work orders. ELLIPSE did not provide any financial accounting, so the MAT reverted to using paper logs. There was no capability for the project engineers of Lockheed Martin in Moorestown to participate or observe any work done against a work order due to firewall issues with CGDN+ connectivity in Moorestown. Accordingly, all Lockheed Martin work order responses were being accomplished by either e-mail or telephone.
1.15 Provide ELLIPSE system functionality to all delivered cutters enabling them to generate supply requisitions. Require system capability prior to acceptance of all future cutters (see page 32, par. 10.4.1.5). (Reliability)	10.4.1 .5	The supply department at Group Key West received no requisitions during the test period. The one requisition processed, was handled by the ICGS site representative, therefore this capability has not been demonstrated. Legacy requisitions could not be generated by ELLIPSE. Numerous legacy requisitions were attempted, but all attempts failed.	Supply requisitions were not being generated by the cutters because of difficulties in using the catalog function of ELLIPSE. Locating the ELLIPSE--required "stock code" was a tedious and time-consuming effort that had too little return for the amount of work required. Parts requisition function was not possible as it required a "stock code" which could not be found by the crew in the ELLIPSE catalog. The Site Rep had become the single source of Deepwater supply for the Sector Key West cutters. Sector Key West personnel had received LIMS training but were still unable to process requisitions using ELLIPSE. The permissions and approval processes were not clear to all users. The lack of financial tracking capability rendered the tool ineffective to the shore side supply activity. As a result of the cumbersome requisition processes, many items were being procured commercially.
1.16 Install, test and exercise the FLMS at-sea portion of LIMS. Require FLMS system capability prior to acceptance of all future cutters (see page 32, par. 10.4.1.6). (Reliability)	10.1.4 .6	The fleet logistics management system (FLMS) portion of LIMS was not demonstrated during the test period.	FLMS software was installed and basic connectivity was demonstrated with limited success amongst the cutters. However, FLMS was not able to demonstrate an at sea operational capability.
1.17 Establish a billet capable of managing the new C4ISR computer suite and to perform COP track data management, including required training for operation, system administration, and operational maintenance (see page 40, par. 13.7.1.5). (Logistic Supportability)	13.7.1 .5	The new upgrade contains a networked C4ISR suite including navigation, radar, and a COP. This enterprise contains six servers; two UNIX based and four Windows based. This points to a strong requirement for either OS or ET functionality to manage the computer suite and to perform track data management. There are no billets or training identified to support the system on board. All system administration functions are planned to reside ashore in the electronic support units/detachments. The level of C4ISR expertise for current 110' WPB crew and shore support facilities is minimal and the planned training in support of the 123' WPB upgrade appears insufficient. (Uncorrected from COMOPTEVFOR letter of concern, reference (e).)	The proposed changes to the Master Training List for the 123' WPB include the recommendations for adding CG-C2 equipment operation and bridge watch standing courses of instruction for the CO, XO, and four BMs. An undefined but limited portion of the C2 maintenance and management course of instruction has been recommended for the XO and a BM1. There appears to be a misalignment between required tasks to operate and support the C4ISR system and the practical factors of the billets assigned to the 123' WPB.

1.18 Conduct a thorough review of formal training courses being developed to support the new cutter systems. Ensure that appropriate training courses and lesson plans, for both schoolhouse and self-study, are adequate for formal training and shipboard study and are being provided to the USCG training commands for implementation (see page 46, par. 16.3.1). (Training)	16.3.1	IDS training was not compatible with legacy training systems for an experienced 110 crew who transferred to the 123' WPB (CGC NANTUCKET to CGC MATAGORDA). Training for ELLIPSE/COMDAC INS/EO/IR Surveillance System was found to be severely inadequate and there were many areas where the crew received no training at all. There were no formal training course handouts, no electronic on-board training programs, no revised or new personnel qualification standards documents, and no formal lesson plans provided to USCG training commands to support current operators and maintainers. Delivery training may prove adequate for current crews, but there is no pipeline training planned for follow-on crew members or support personnel.	A draft 123' WPB Master Training List (MTL) is in the early stages of development as well as identification of possible courses of instruction that may be possible for inclusion in the TRACEN training architectures. The processes required to create the required courses and develop the administrative and personnel infrastructure to support their effectiveness will take time. Nine new courses of instruction are currently included in the draft 123' WPB MTL. In the interim, there are no self study courses, no electronic on-board training courses, no updated PQS booklets, or other training systems developed to fill the period until and if formal courses of instruction can be developed. While the current crews of delivered cutters were provided some introductory level of training by the developer at delivery, that training was not sufficient to give even these now experienced crews the ability to effectively operate and maintain their new equipments. There is no process in place to train the relieving crewmembers arriving this summer for those cutters already delivered. Because of this, the long-term sustainability of current/qualified crews for the 123' WPB in the Coast Guard's existing personnel accession, training, and assignment process is at risk.
1.19 Install a second ARC-210 UHF transceiver so that the 123' WPB can conduct simultaneous line-of-sight and satellite communications (see page 22, par. 7.11.1.2). (Connectivity)	7.11.1 .2	The 123' WPB was provided with a single ARC-210 UHF transceiver which replaced two UHF transceivers currently in use on the 110'. During representative missions, a WPB routinely requires both UHF radios to be in simultaneous use. The 123' WPB ARC-210 can function in either line-of-sight or satellite communications (SATCOM) mode but not simultaneously. This represents a loss of functionality and a single point of failure with respect to UHF communications.	This remains a reduction in capability from the 110' WPB. The current performance of the ARC-210 was hampered by lack of training for both operations and the programming and loading of crypto material. With the elimination of UHF satellite radio redundancy, there was a single point of failure in satellite comms that impacts the capability for both voice and tactical data (COP) connectivity.
1.20 Incorporate special emergency operations training and onboard team training including update of drill and grade sheets based on revised navigation standards and main space fire doctrine (see page 46, par. 16.3.1). (Training)	16.3.1	IDS training was not compatible with legacy training systems for an experienced 110 crew who transferred to the 123' WPB (CGC NANTUCKET to CGC MATAGORDA). Training for ELLIPSE/COMDAC INS/EO/IR Surveillance System was found to be severely inadequate and there were many areas where the crew received no training at all. There were no formal training course handouts, no electronic on-board training programs, no revised or new personnel qualification standards documents, and no formal lesson plans provided to USCG training commands to support current operators and maintainers. Delivery training may prove adequate for current crews, but there is no pipeline training planned for follow-on crew members or support personnel.	An updated main space fire doctrine had been drafted and was being exercised by the crews, and satisfactory execution was part of the ready for operations certification by Sector Key West. No other updates were observed that modified other onboard operational procedures, training packages and drill sheets for ship evolutions that have been impacted by the modifications.