



## DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND  
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WASHINGTON, DC 20376

IN REPLY REFER TO

4720

NAVSEAINST 9593.2A

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15 Apr 2004

### NAVSEA INSTRUCTION 9593.2A

From: Commander, Naval Sea Systems Command

Subj: INSPECTION AND CERTIFICATION PROCESS FOR OIL POLLUTION ABATEMENT (OPA) SYSTEMS IN U.S. NAVY SURFACE SHIPS AND CRAFT

Ref: (a) OPNAVINST 5090.1B CH-3, Environmental and Natural Resource Program Manual  
(b) Department of Defense (DoD) Directive 6050.15  
(c) Title 33, Code of Federal Regulations, Parts 151, 155, and 157, "Oil Pollution Regulations"  
(d) Title 46, Code of Federal Regulations, Part 162, "Engineering Equipment; Design and Approval Requirements for Oil Pollution Prevention Equipment"  
(e) OPNAVINST 5090.1B CH-19, Environmental and Natural Resource Program Manual

Encl: (1) Specific Actions, Responsibilities and Procedures for Inspection and Certification of U.S. Navy Shipboard Oil Pollution Abatement Equipment and Systems

1. Purpose. This instruction defines the Naval Sea Systems Command (NAVSEA) inspection and certification process for oil pollution abatement (OPA) equipment and systems. Requirements for inspection and certification of OPA equipment and system installations are outlined to ensure compliance with Federal and DoD regulations.

2. Cancellation. NAVSEA INSTRUCTION 9593.2 of 1 Oct 96

3. Applicability and Scope. This inspection and certification process is applicable to all U.S. Navy surface ships on which shipboard OPA equipment and systems are currently installed or are being installed during new construction, conversion or under the Fleet Modernization Program (FMP). These shipboard waste oil/oily waste (WO/OW) control systems include oil water separators (OWS), oil content monitors (OCM), oily waste holding tanks (OWHT), oily waste transfer systems, waste oil tanks (WOT), oily waste ultrafiltration systems (OWUS) and associated components.

4. Background.

a. Reference (a) is the formal Navy implementation plan ensuring compliance with reference (b). Reference (b) defines oil content effluent standards and establishes guidelines for the treatment of oily bilge water prior to discharge. Requirements include the installation of shipboard oil water separators; oil content monitors; and associated tanks, pumps, valves, piping, fittings and transfer equipment. In addition, certification and recertification inspections must be accomplished to verify proper equipment installation and operation.

b. Reference (b) requires an initial inspection, before the ship is put into service or, in the case of a backfitted system, just after equipment installation, and recertification inspections thereafter not exceeding 5 years between inspections. Carderock Division Naval Surface Warfare Center, Code 631 (CDNSWC 631) will conduct initial inspections and will issue a certificate. In the case of a system that was never initially certified upon installation, the system will require inspection for certification by CDNSWC 631. All Critical Deficiencies must be resolved prior to certificate issuance. Recertification inspections will be conducted during Board of Inspection and Survey (INSURV) Material Inspections (MI) and Navy Occupational Safety & Health (NAVOSH) and Environmental Protection (NEP) Assessments. Ship systems with Critical Deficiencies not corrected within 4 months of the recertification inspection shall be re-inspected prior to issuance of a new certificate. OPA certificates are valid for a period of five years or until the next re-inspection whichever occurs first, and are equivalent to the International Oil Pollution Prevention (IOPP) certificate issued by references (c) and (d) to private ships. When an inspection determines that a ship does not comply with the requirements of reference (b), corrective actions shall be immediately initiated to bring the ship into compliance. Ships with expired OPA certificates should continue to use their OPA systems provided the system is operable and no hazards exist by utilizing reference (e) for specific operational guidance.

c. The inspection and certification process to monitor fleet-wide installations of shipboard OPA systems and equipment minimizes FMP and logistic support costs by ensuring proper installations and associated performance capabilities.

#### 5. Action and Responsibilities.


a. Specific actions, responsibilities and procedures for the inspection and certification of shipboard OPA equipment and systems are contained in enclosure (1).

#### 6. Reports.

a. The report of deficiencies found during inspections of OPA systems in U.S. ships and craft is exempt from report control procedures in accordance with NAVSEAINST 5214.2, Chapter III, paragraph 3.

b. Report symbol NAVSEA 9593-3 is assigned to the report of Correction of Deficiencies of OPA systems in U.S. Ships and Craft.

c. Configuration changes accomplished on OPA systems during maintenance, repair, or overhaul shall be reported on the OPNAV 4790/CK form.



P. E. Sullivan

NAVSEAINST 9593.2A  
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SPECIFIC PROCEDURES, ACTIONS, AND RESPONSIBILITIES FOR INSPECTION AND  
CERTIFICATION FOR U.S. NAVY SHIPBOARD OIL POLLUTION ABATEMENT (OPA)  
EQUIPMENT AND SYSTEMS

1. Procedures:

- a. DoD Directive 6050.15, which is implemented by OPNAVINST 5090.1B, requires all U.S. Navy Shipboard Oil Pollution Abatement Equipment and Systems to be inspected and certified as being operational.
- b. All Critical Deficiencies must be resolved prior to certificate issuance.
  - (1) Critical Deficiencies are defined as: Items that must be corrected prior to issuance of a certificate of compliance. A Critical Deficiency is any installation or equipment deficiency that would cause the discharge of unacceptable effluent or are a human and/or equipment safety hazard. They include any faulty or incomplete installation item and any equipment or logistics defect that prevents the proper operation of OPA systems and equipment. A "C" in the checklist box denotes Critical checklist items in Attachments (B) through (J), Enclosure (1).
  - (2) Non-Critical Deficiencies: Items that do not require correction prior to certificate issue. Non-critical items are installation and equipment deficiencies that would not cause the inadequate treatment of oily bilge water and the discharge of unacceptable effluent and do not represent a human and/or equipment safety hazard.
- c. The typical sequence of events and actions from design review to certification issuance for both the Fleet Modernization Program and New Construction and Conversion Ships is outlined in Attachment (A), Enclosure (1).

2. Design Review:

- a. New Construction and Conversion: Ship Program Managers (SPMs) shall establish liaison with Naval Sea Systems Command Code 05M4 (NAVSEA 05M4) and the OPA system inspector at Carderock Division Naval Surface Warfare Center, Code 631 (CDNSWC 631) to ensure compliance with the applicable design baseline. SPMs shall ensure that NAVSEA 05M4 participates in appropriate OPA system design reviews and approves any proposed modifications to the OPA baseline design.
- b. Fleet Modernization Program: Each planning activity shall provide installation drawings to CDNSWC 631 and Supervisor, Shipbuilding and Repair (SUPSHIPS) within 30 days of drawing completion for design review purposes.

3. System Inspection Scheduling:

- a. New Ship Construction: SPMs shall ensure that inspections are conducted prior to Builder's Trials and that the cognizant SUPSHIP provides notification to CDNSWC 631 that the OPA system is ready for inspection at least three weeks prior to Builder's Trials. It is not intended that this milestone be formalized into the shipbuilding contract or that the inspection interfere with the shipbuilding schedule. SUPSHIP and the inspectors should coordinate timing of the inspection visit at the convenience of all parties so as to not impact delivery. The OPA system inspection should be considered a Pre-Board of Inspection and Survey (INSURV) audit, but should be scheduled early enough to allow for the identification of deficiencies and determination of responsibility for corrective action and the correction of all contractor responsible deficiencies prior to Acceptance Trials.
- b. Fleet Modernization Program: Each Naval Shipyard (NAVSHIPYD) or SUPSHIP shall establish liaison with CDNSWC 631 so that the OPA system inspection can be scheduled with a minimum of three weeks' advance notice and sufficient time is available after the inspection to correct any deficiencies.
- c. Previously Inspected Systems: Recertification inspections will be conducted every Inter-Deployment Training Cycle (IDTC) by INSURV as part of Material Inspections (MI) or NAVOSH and Environmental Protection (NEP) Assessments. For recertification inspections in special cases that do not occur during an INSURV MI or NEP Assessment, Type Commanders (TYCOMs) can employ a qualified activity, such as Fleet Technical Support Centers (FTSCs) or CDNSWC 631, to conduct recertification inspections. In the event an inspection or a certificate renewal can not be completed within the specified time, a six month extension may be granted. In no case shall more than two consecutive extensions be granted at any one time.

4. Inspection Conduct: The inspection shall be conducted using the appropriate equipment certification checklists, Attachments (B) through (J), Enclosure (1) which covers the minimum installation, performance requirements and standards.

5. Reporting and Correction of Deficiencies:

- a. New Construction and Conversion: A post-inspection conference chaired by the CDNSWC 631 inspector shall be held with SUPSHIP and ship's force representatives. The purpose of the conference is to review the deficiencies identified by the inspector and to establish responsibility for correction of the deficiencies. If responsibility for corrective action of a deficiency cannot be resolved, or if it is of a design nature clearly beyond the scope of the contract specifications, this shall be stated in the inspection report to the SPM. SPMs shall then resolve the issue of responsibility and determine corrective action. Prior to ship

delivery, the SUPSHIP shall ensure that the contractor corrects the contractor responsible deficiencies. In most instances, it is intended that the SPMs direct the SUPSHIP to negotiate a contract modification with the contractor for corrective action while the ship is still within the Ship Construction Navy (SCN) envelope. The SUPSHIP shall advise SPMs of action taken to correct the contractor responsible deficiencies identified in the inspection report and shall notify INSURV of all uncorrected contractor deficiencies. SPMs shall notify NAVSEA 05M4, CDNSWC 631 and TYCOM of the resolution of all deficiencies.

- b. Fleet Modernization Program: A post-inspection conference chaired by CDNSWC 631 shall be held with ship's force and the cognizant NAVSHIPYD or SUPSHIP representatives to adjudicate and categorize deficiencies. Prior to the ship's departure, the installing activity shall correct those installation deficiencies that fall within the scope of the Ship Alteration (SHIPALT). The NAVSHIPYD or SUPSHIP shall report to SPMs the action taken to correct the installation deficiencies. CDNSWC 631 shall issue a message inspection report from the ship prior to completion of the inspection visit.

Previously Inspected Systems: The OPA inspection results for INSURV re-inspections will be forwarded to the TYCOM for oversight and issuance of a new certificate of compliance upon correction of all Critical Deficiencies. Critical deficiencies shall be corrected within 4 months. Certificates of compliance shall be issued to the ship with copies to the SPMs, FTSCs, Immediate Superior in Command (ISIC) and CDNSWC 631. Ship systems with Critical Deficiencies not corrected within 4 months of the recertification inspection shall be re-inspected prior to issuance of a new certificate.

## 6. Certificate Issuance.

- a. New Construction and Conversions:

The Integrated Logistics Support (ILS) Information for the OPA system may not be uploaded in the ship's system when the OPA certification inspection occurs. For New Construction and Conversions, the ILS related items are not applicable until Navy acceptance of the ship.

- (1) If no Critical Deficiencies are found and ILS has not been loaded, CDNSWC 631 will issue a "safe to operate" message to the ship with an information copy to the TYCOM, NAVSEA 05M4 and SPMs valid until Navy acceptance of the ship. Within this period of time, SUPSHIP will ensure that the required ILS is uploaded into the ship's system and will notify CDNSWC 631, in writing, that the ILS was uploaded. After ILS verification is received, CDNSWC 631 will issue a certificate of compliance Attachment (K), Enclosure (1) to the ship with an information copy to the

TYCOM, NAVSEA 05M4 and SPMs valid for five years or until the next recertification inspection whichever occurs first.

- (2) If Critical Deficiencies are found, the SUPSHIP, upon correction of all contractor responsible Critical Deficiencies and verification that the required ILS is uploaded into the ship's system, shall recommend that SPMs complete and issue a certificate of compliance to the ship with information copies to the TYCOM, NAVSEA 05M4 and CDNSWC 631 valid for five years or until the next recertification inspection whichever occurs first.

The certificate is issued provided that the system is fully operational, no hazards exist, all logistic support elements have been provided and all critical items on the applicable checklist have been satisfied. If all of the criteria necessary for certification cannot be satisfied during construction or conversion, the action of granting certification shall be the responsibility of the SPM.

b. Fleet Modernization Program: If no Critical Deficiencies are found, CDNSWC 631 will complete and issue a certificate of compliance, Attachment (K), Enclosure (1), to the ship with an information copy to the TYCOM. If Critical Deficiencies are found, the NAVSHIPYD or SUPSHIP, upon correction of all Critical Deficiencies, shall recommend to the TYCOM that they issue a certificate of compliance to the ship with an information copy to CDNSWC 631 and NAVSEA 05M4.

c. Previously Inspected Systems: INSURV will forward the completed inspection checklists to the TYCOM with copy to ship's Commanding Officer (CO), ISIC, NAVSEA 05M4, SPMs and CDNSWC 631. If no Critical Deficiencies are found and the OPA system complies with standards, TYCOM will issue a new certificate of compliance within 30 days to the ship with an information copy to NAVSEA 05M4 and CDNSWC 631. New certificates shall not be issued until all Critical Deficiencies have been corrected. All Critical Deficiencies shall be corrected within 4 months. TYCOM shall issue the certificate within 30 days of correction of the Critical Deficiencies. If critical deficiencies are not corrected within 4 months, the system will require re-inspection to regain certification status. The TYCOM shall delineate actions required to bring ship into certifiable status.

## 7. Action/Responsibilities

- a. Environmental Protection Program Manager (NAVSEA 05M4): Technical authority responsible for design guidance, inspection checklists, engineering input, including design baseline criteria, specifications, design data sheets and drawings, preparation and updating the general specifications for overhaul, reviewing and evaluating requests for waivers, and maintaining and updating ILS



and technical documentation for OPA systems. Monitors program progress and provide program status to NAVSEA and higher authority as required.

b. CDNSWC 631:

- (1) General Responsibilities: Provide technical assistance requested by SPMs, SUPSHIP or NAVSHIPYD. Any such assistance shall be funded by the requesting activity.
- (2) New Construction and Conversions: Conduct a design review of installation drawings. Provide a formal report detailing any discrepancies found with current baseline design guidance within fourteen (14) days after receipt of drawings to SPMs, SUPSHIP, planning activity and NAVSEA 05M4. Inspect the system using the appropriate authorized checklist, Attachments (B) through (J), Enclosure (1). Conduct a post-inspection conference and provide a list of deficiencies to attendees. Provide a formal inspection report to the SUPSHIP and SPMs for action within two weeks following the inspection. Information copies shall be sent to the planning activity, ship, SUPSHIP, TYCOM, NAVSHIPYD or SUPSHIP, SPMs, and NAVSEA 05M4 listing any deficiencies. Each deficiency in the report shall be marked as either contractor or Government responsible as determined during the post-inspection conference. If no Critical Deficiencies are found and the OPA system complies with standards, complete and issue a certificate of compliance within 30 days to the ship with an information copy to the TYCOM, NAVSEA 05M4 and SPM.
- (3) Fleet Modernization Program: Review Ship Installation Drawings (SIDs) and Ship Alteration Records (SARs) produced by planning yards for conformance to technical guidance and report on findings. Prior to completion of the inspection visit issue from the ship a message report to the installing activity.

c. Installing or Supervising Activity (SUPSHIP or NAVSHIPYD):

- (1) New Construction and Conversions: Ensure that required corrections to the drawings as detailed in the CDNSWC 631 design review report are made. Notify SPMs and the CDNSWC 631 inspector of the system inspection schedule at least three weeks prior to the inspection. The inspection should occur prior to Builder's Trials. Accompany inspectors during the inspection. Establish responsibility, contractor or Government, for correction of deficiencies. Take action to have contractor correct all items determined to be within contractor responsibility and notify NAVSEA 05M4 and SPMs when deficiencies have been corrected (Report Symbol NAVSEA

9593-3). Advise SPMs of design deficiencies that are Government responsibility and provide information regarding the feasibility of correction while the ship is within the SCN envelope. Ensure that the required ILS is uploaded into the ship's system within a 120 days period from the Navy acceptance of the ship. Upon completion of ILS upload, notify CDNSWC 631 and the SPM in writing the ILS has been uploaded into the ship's system. After verifying that all deficiencies have been corrected, recommend to the SPMs that they complete and issue a certificate of compliance to the ship with information copies to the TYCOM, NAVSEA 05M4 and CDNSWC 631.

- (2) Fleet Modernization Program: Conduct pre-overhaul design review, shipchecks and inspections as required ensuring the system complies with the baseline design guidance. Ensure results of design review are incorporated into the contract or work package. Ensure installation drawings are forwarded to CDNSWC 631 for review. Compare required inspection items with work items in the repair contract work package. Notify CDNSWC and SUPSHIP if there are omissions in the work item list. Ensure that the Oily Waste Transfer System, Oil Water Separator (OWS), and Oil Content Monitor (OCM) systems are installed in accordance with SIDs and SARs. Notify CDNSWC 631 inspector of scheduled inspection at least three weeks prior to start of the inspection. Inspections should be scheduled in sufficient time to allow for correction of installation deficiencies prior to completion of a ship's availability. Accompany CDNSWC 631 inspectors during the verification inspection. Provide assistance in categorizing deficiencies at the post-inspection conference and monitor actions to resolve deficiencies to achieve certificate issuance. Advise SPMs of any design deficiencies and action taken to correct installation deficiencies. Correct all items determined to be within installing activity responsibility and notify SPMs when deficiencies have been corrected (Report Symbol NAVSEA 9593-3). When deficiencies have been corrected, recommend to the TYCOM that the TYCOM complete and issue an inspection certification to the ship with an information copy to CDNSWC 631 and NAVSEA 05M4.

d. Ship Program Managers (SPMs):

- (1) General Responsibilities: SPMs shall ensure that OPA systems in new construction ships are properly installed in accordance with design baseline criteria and that deficiencies are corrected before systems are turned over to the fleet. SPMs shall ensure the OPA system SHIPALTs conform to design baseline criteria, the ship installation drawings are reviewed by CDNSWC 631, and the deficiencies are corrected before SIDs/SARs are issued to installing

activities. SPMs shall include the inspection requirements in OPA SHIPALTS. SPMs shall require re-inspection in any subsequent SHIPALT that alters or otherwise affects the operation of the OPA system.

(2) New Construction and Conversion: Task and fund CDNSWC 631 to conduct a design review, as required, for the lead ship, verification inspections and ship's force training. Ensure installation drawings are forwarded to CDNSWC 631 for review. Ensure that specific procedures and responsibilities for the implementation of this program are properly established by SUPSHIP. Utilizing existing liaison procedures with SUPSHIP, ensure contractor responsible deficiencies are corrected. Upon receipt of the inspection report, take action to investigate if outstanding deficiencies beyond the scope of contract specifications can be incorporated into the system, preferably during the SCN period. Upon receipt of a recommendation from SUPSHIP, complete and issue a certificate of compliance to the ship with information copies to the TYCOM, NAVSEA 05M4 and CDNSWC 631.

(3) Fleet Modernization Program: Task and fund CDNSWC 631 to conduct design reviews, certification inspections and ship's force training. Utilizing existing liaison procedures, coordinate with the installing activity to ensure SHIPALT installation deficiencies are resolved and work specifications are complete. Ensure that outstanding design deficiencies beyond the scope of the alteration are incorporated in a SHIPALT revision. Task and fund SUPSHIP, as required, to provide for pre-overhaul design review, verification inspections and ship's force training.

e. Type Commanders (TYCOMs):

(1) General Responsibilities: Issue, as appropriate, implementing instructions, responsibilities and procedures of TYCOM organizational elements to achieve and maintain inspection and certification of each ship OPA system. Ensure ship's force monitors SUPSHIP and NAVSHIPYD efforts to correct installation deficiencies identified by the OPA system inspectors. Complete and issue certificates of compliance to ships under TYCOM cognizance based on report of correction of all deficiencies. Ensure OPA system recertification inspections are conducted to ensure that the system is performing properly. These inspections should be conducted at every IDTC by INSURV as part of every MI or every NEP assessment or when an INSURV inspection does not occur within 5 years. Review the results of the system inspection conducted following equipment installation upgrades or during the INSURV MI or NEP Assessment. Verify correction of all Critical Deficiencies. Issue a new certificate to the ship. Ensure

ship's force is adequately trained in the operation and maintenance of the system components, conducts required maintenance actions and operates the system where pier reception facilities are not available or local regulations require. In the event of OPA system inoperability, malfunction, casualty or incidence of safety, health or sanitation risk, ensure the ship submits a feedback report (4790/2K) in accordance with 3M/MDS.

- (2) New Construction and Conversion: For ships that have been delivered and are beyond the SCN envelope, verify that all inspection deficiencies have been corrected and complete and issue a certificate of compliance to the ship with information copy to CDNSWC 631 and SPMs.
- (3) Fleet Modernization Program: The responsibility of the TYCOM for certificate issuance is to verify the system has been reported operational by the installing activity and to ensure that outstanding installation deficiencies have been corrected and that the ship system is in compliance with the requirements of this instruction. Systems generally can be verified if installed and tested to the originally authorized SHIPALT. Follow-on action shall be taken after installation of any required system update SHIPALT(S) to incorporate outstanding design features required by the baseline design guidance.

For Previously Inspected Systems: Ships that have been previously inspected, conduct recertification inspections as outlined in Section 4 of this instruction. Recertification inspections will be conducted by INSURV during IDTC as part of every MI and every NEP assessment. TYCOMs shall be responsible for recertification inspections when an INSURV inspection does not occur within 5 years. TYCOMs can employ a qualified activity, such as FTSCs or CDNSWC 631, to conduct recertification inspections when an INSURV inspection does not occur within 5 years and provided that the appropriate checklists of this instruction are used. Ensure that any Critical Deficiencies found during a recertification inspection are corrected within 4 months of the inspection date. New certificates shall not be issued until all Critical Deficiencies have been corrected. TYCOM shall issue the certification within 30 days of correction of the critical deficiencies. If critical deficiencies are not corrected within 4 months, TYCOM shall delineate actions required to bring ship into certifiable status and schedule a re-inspection to regain certification status. Ensure that Job Sequence Numbers (JSN) are assigned to all Non-Critical Deficiencies.

Table One

Events / Actions in the OPA System Inspection and Certification Process		Program Responsibility	
Previously Inspected Systems	Fleet Modernization Program	*New Construction and Conversion	
<b>1 DESIGN REVIEW</b>			
a. Forward installation drawings to CDNSWC 631.	Planning Activity	SPMs	
b. Ensure design package complies with design guidance baseline.	SUPSHIP/CDNSWC 631	SPMs/CDNSWC 631	
c. CDNSWC 631 forwards review findings to:	Planning Activity	SPMs, SUPSHIP, Planning Activity, NAVSEA 05M4	
d. Ensures SHIPALT work specifications are complete	SUPSHIP and SPMs	N/A	
<b>2. SYSTEM INSPECTION</b>			
a. Notifies CDNSWC 631 inspectors concerning inspection schedule.	NAVSHIPYD or SUPSHIP	SUPSHIP	
b. Performs shipboard inspection of complete system.	CDNSWC 631, NAVSHIPYD or SUPSHIP, Ship's Rep	CDNSWC 631	
c. Conducts post-inspection conference.	NAVSHIPYD or SUPSHIP, Ship, Planning Activity, SPMs, INSURV	SUPSHIP, CDNSWC 631, Ship's Rep	
d. Inspection results forwarded by CDNSWC 631 to:	SUPSHIP, TYCOM, Ship, NAVSEA 05M4, Planning Activity, SPMs, INSURV	SUPSHIP, TYCOM, Ship, NAVSEA 05M4, Planning Activity, SPMs, INSURV	
e. Inspection results forwarded by INSURV to:	N/A	N/A	

Table One (cont')

Events / Actions in the OPA System Inspection and Certification Process	Previously Inspected Systems	Program Responsibility	
		Fleet Modernization Program	*New Construction and Conversion
<b>3. FOR ALL DEFICIENCIES FOUND DURING INSPECTION</b>			
a. Installation or contractor responsible deficiencies. -Initiates corrective action. -Reports action completed to SPMS, NAVSEA 05M4, CDNSWC 631, INSURV.	Ship, TYCOM TYCOM	Installing Activity NAVSHIPYD or SUPSHIP	SUPSHIP Contractor reports- SUPSHIP verifies
b. Design deficiencies -Advises SPMS, NAVSEA 05M4, CDNSWC 631 of design deficiencies. -Approve modifications with concurrence of NAVSEA 05M4. -Initiates corrective action.	TYCOM  SPMS  Ship or TYCOM and NAVSEA 05M4; or SPM and NAVSEA 05M4	NAVSHIPYD or SUPSHIP  SPMS  Planning Activity	N/A  N/A  N/A
-Reports corrective action completed to NAVSEA 05M4, SPMS, CDNSWC 631 and INSURV.	NAVSHIPYD or SUPSHIP and TYCOM	NAVSHIPYD or SUPSHIP	N/A
c. Government responsible deficiencies -Advises SPMS of deficiencies. -Reports corrective action completed.	N/A N/A	N/A N/A	SUPSHIP SUPSHIP

Table One (cont')

Events / Actions in the OPA System Inspection and Certification Process	Program Responsibility		
	Previously Inspected Systems	Fleet Modernization Program	*New Construction and Conversion
<b>4. CERTIFICATE ISSUANCE</b>			
a. NO CRITICAL DEFICIENCIES: Recommend to TYCOM that new certificate be issued.	INSURV	N/A	N/A
b. NO CRITICAL DEFICIENCIES: Completes and issues certificate if no Critical Deficiencies are found after initial inspection.	TYCOM	CDNSWC 631	CDNSWC 631
c. NO CRITICAL DEFICIENCIES: Generates report that deficiencies have been corrected to NAVSEA 05M4, INSURV, CDNSWC 631.	TYCOM	NAVSHIPYD or SUPSHIP	SUPSHIP
d. CRITICAL DEFICIENCIES: When critical deficiencies corrected, recommends to TYCOM/SPMs that certificate be issued.	Ship, TYCOM	NAVSHIPYD or SUPSHIP	SUPSHIP
e. CRITICAL DEFICIENCIES: After recommendation received, completes and issues new certificate.	TYCOM	TYCOM	SPMs

## OPA GENERAL CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
31	OILY WASTE DRAIN	<b>** FOR INITIAL INSPECTION ONLY:</b> Does all oily waste drain to the OWHT or other oily waste collection tank?					
32	OILY WASTE DRAIN	<b>** FOR INITIAL INSPECTION ONLY:</b> Does waste from the centrifugal lube oil purifier bowl drain to a used lube oil tank or the WOT?					
33	OILY WASTE DRAIN	<b>** FOR INITIAL INSPECTION ONLY:</b> For ships with gas turbines, is the gas turbine waste drain system segregated from the oily waste system? If no, describe configurations allowing gas turbine waste to be introduced to the OWT system.					
34	OILY WASTE DRAIN	Is the JP-5 stripping system/drain tanks cross connected to the suction piping of the OWT system?					
35	OILY WASTE HOLDING TANK	<b>** FOR INITIAL INSPECTION ONLY:</b> Does the OWHT overflow initiate from a low point near the tank bottom and does it discharge at least one deck above the full load water line?					
36	OILY WASTE HOLDING TANK	Can the TLIs indicate oil-water and oil-air interfaces? ( <b>Note:</b> TLIs are not required on auxiliary fuel tanks that are 500 gallons or less)					
37	OILY WASTE HOLDING TANK	Does each OWHT have an air vent and a sounding tube? (MCM, MSC & MHC ship classes excluded from sounding tube requirement)	C				
38	OILY WASTE HOLDING TANK	Does the OWHT have a discharge connection from the OWS, FO and oily waste transfer pumps?					
39	OILY WASTE HOLDING TANK	Does the OWHT have Tank Level Indicators (TLI) with high level alarms? ( <b>Note:</b> TLIs are not required on auxiliary fuel tanks that are 500 gallons or less)	C				
40	OILY WASTE HOLDING TANK	Is the OWHT low suction connected to the OWT pump suction?					
41	OVERBOARD OVERFLOWS	<b>** FOR INITIAL INSPECTION ONLY:</b> Are the overflows installed IAW Gen Spec Section 506?					
42	OVERBOARD OVERFLOWS	<b>** FOR INITIAL INSPECTION ONLY:</b> Are there separate overflows for FO and JP-5 tanks?					
43	OVERBOARD OVERFLOWS	<b>** FOR INITIAL INSPECTION ONLY:</b> Does the Contaminated Oil Settling (COS) tank overflow originate low in the tank and does it overflow to the OWHT or overboard?					
44	OVERBOARD OVERFLOWS	<b>** FOR INITIAL INSPECTION ONLY:</b> Does the FO service tank overflow originate from a low point in the tank?					
45	OVERBOARD OVERFLOWS	<b>** FOR INITIAL INSPECTION ONLY:</b> Does the FO service tank overflow to an overflow tank or to the FO storage tank overflow main?					
46	OVERBOARD OVERFLOWS	<b>** FOR INITIAL INSPECTION ONLY:</b> Is the FO service tank overflow higher than the FO storage tank overflow high point?					



## OPA GENERAL CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
47	OVERBOARD OVERFLOWS	<b>** FOR INITIAL INSPECTION ONLY:</b> Is the overflow piping sized to handle the maximum combined filling rate of all tanks?					
48	OVERBOARD OVERFLOWS	<b>** FOR INITIAL INSPECTION ONLY:</b> Is there a check valve in the FO service tank overflow?					
49	OWT AND FO STRIPPING PUMPS	<b>** FOR INITIAL INSPECTION ONLY:</b> Is the OWT overboard discharge above the full load waterline?					
50	OWT AND FO STRIPPING PUMPS	Are all OPA system gage lines protected from inadvertent damage?					
51	OWT AND FO STRIPPING PUMPS	Are all spaces/tanks which contain oily waste serviced by an OWT pump?					
52	OWT AND FO STRIPPING PUMPS	Are hose connections installed on the OWT system header in each space serviced?					
54	OWT AND FO STRIPPING PUMPS	Are hose connections provided on the suction and discharge side of OWT pump(s)?					
55	OWT AND FO STRIPPING PUMPS	Are strainer cover gaskets installed and in good material condition (ie free from cracks, leaks and maintain a seal)?					
56	OWT AND FO STRIPPING PUMPS	Are the OWT and FO stripping pump discharges cross-connected with a locked closed isolation valve?					
53	OWT AND FO STRIPPING PUMPS	Are the OWT and FO stripping pumps cross-connected on the suction side by a ball valve and a check isolation valve?					
54	OWT AND FO STRIPPING PUMPS	Do all indicators, alarms, switches, and lamps operate satisfactorily?	C				
55	OWT AND FO STRIPPING PUMPS	Do all OWT pump suction strainers have a basket with approximately 7/16" holes as per GSO Section 529?	C				
56	OWT AND FO STRIPPING PUMPS	Do all valves (manual and motorized) operate satisfactorily?					
57	OWT AND FO STRIPPING PUMPS	For Blackmer OWT pumps, is a recirculation line installed 8 in. below the inlet for the recirculation chamber and connected the suction side of the pump?					
58	OWT AND FO STRIPPING PUMPS	For Blackmer OWT pumps, is a swing check valve installed in the OWT pump suction to prevent drainage of the recirculation chamber when the pump is secured?					
59	OWT AND FO STRIPPING PUMPS	For Blackmer OWT pumps, is the outlet connection for the recirculation chamber higher than the inlet connection on the pumps?					
60	OWT AND FO STRIPPING PUMPS	If installed, is the differential pressure switch across the OWTP(s) strainer(s) operational?					
61	OWT AND FO STRIPPING PUMPS	If the OWT pump is cross-connected to the main drain system, is the cross connection provided with a locked shut ball valve?	C				
62	OWT AND FO STRIPPING PUMPS	Is (are) the OWT Pump(s) operational by transferring fluid?	C				
63	OWT AND FO STRIPPING PUMPS	Is a 25 ft hose with strainer provided in each space?					
64	OWT AND FO STRIPPING PUMPS	Is a recirculation chamber installed on all Blackmer OWT pumps?					

## OPA GENERAL CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
65	OWT AND FO STRIPPING PUMPS	Is the axis of rotation of the OWT pump(s) and motor(s) horizontal and parallel to the centerline of the ship?					
66	OWT AND FO STRIPPING PUMPS	Is the inlet connection for the recirculation chamber at the same level as the Blackmer OWT pump discharge?					
67	OWT AND FO STRIPPING PUMPS	Is the OWT overboard discharge provided with a valve that is locked shut?	C				
68	OWT AND FO STRIPPING PUMPS	Is the OWT pump sized to off-load the OWHT in 1 to 2 hours? (Four hours for carriers.)					
69	OWT AND FO STRIPPING PUMPS	Is the OWT pump suction cross-connected to the main drain system by a check valve and ball valve?					
70	OWT AND FO STRIPPING PUMPS	On ships with steam reciprocating pumps, is a minimum of one motor driven pump installed and used for OWT?					
71	PIPING	<b>** FOR INITIAL INSPECTION ONLY:</b> Is the horizontal distance of the suction line between intake and pump within the maximum allowable distance per Appendix C?					
72	PIPING	<b>** FOR INITIAL INSPECTION ONLY:</b> Are waster pieces installed between dissimilar pipe flanges?					
73	PIPING	<b>** FOR INITIAL INSPECTION ONLY:</b> Is piping sized to accept maximum flow and minimal suction per Appendix C?					
74	PIPING	Are spray shields provided on all pressurized OPA system piping? <b>Note:</b> Does not apply to suction or water discharge piping.					
75	PIPING	Is all piping stenciled with function and flow direction for the entire OPA system?					
76	PLACARDS	Are oil pollution warning placards and cautions restricting the overboard discharge of oily waste poster at the following: (1) At OWS controller (2) At OWT pump controller (3) At OWT overboard discharge valve (4) At OWS overboard valve (5) At deck connections?	C				
77	PLACARDS	Is an electrical control schematic diagram posted inside the OWS main control panel, the OCM main control panel, the OCM remote and indicator panels, the OWTP Main Control Panel, and the Membrane main control panel and do they reflect actual electrical configuration? (Note any differences made by installing activity in comments column.)					
78	PRESSURE GAUGES	Are gauge lines equipped with an isolation valve at connection pipe and installed properly?					
79	PRESSURE GAUGES	Are pressure gauges calibrated and marked with current stickers?					
80	PRESSURE GAUGES	Are pressure gauges equipped with isolation/test valve?					
81	PRESSURE GAUGES	Are pressure gauges operational and free from damage?	C				

## OPA GENERAL CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
82	RELIEF VALVES	Are the relief valve discharges piped downward to prevent spray hazard?	C				
83	RELIEF VALVES	Verify that relief valves have a valid hydrostatic test tag attached.	C				
84	SPILL CONTAINMENT	Are the oil spill kits complete with needed materials per the AEL?					
85	SPILL CONTAINMENT	Is the correct number of oil spill kits onboard? (Correct number of oil spill kits can be found on the AEL.)					
86	STRAINER-DUPLEX OR SIMPLEX	Are compound vacuum/pressure gages or a differential pressure gauge and vacuum gage with a range of 30 in Hg to 30 psig installed at the strainer inlet and outlet for OWS and OWT systems?					
87	STRAINER-DUPLEX OR SIMPLEX	Are strainer cover gaskets installed and in good material condition (i.e. free from cracks, leaks, and maintain seal)?					
88	STRAINER-DUPLEX OR SIMPLEX	Are strainer gauges calibrated, in good condition and do they have current stickers?	C				
89	STRAINER-DUPLEX OR SIMPLEX	Is a yoke type strainer mounted with the yoke flush or above the deck plate and accessible for operation and maintenance?					
90	STRAINER-DUPLEX OR SIMPLEX	Is the strainer properly orientated in the direction of flow?					
91	TANK LEVEL INDICATORS FOR OILY WASTE AND WASTE OIL TANKS	<b>** FOR NEW CONSTRUCTION ONLY:</b> Are all the TLI's operational and calibrated in accord with tank volume diagrams?	C				
92	TANK LEVEL INDICATORS FOR OILY WASTE AND WASTE OIL TANKS	Are all TLIs operational as per applicable PMS (e.g. MIP 4372) and by sounding the tank (one sound check is sufficient)? <b>Note:</b> The TLIs on the PC ship class do not have a PMS requirement. The tank should be filled and the difference checked.	C				
93	TANK LEVEL INDICATORS FOR OILY WASTE AND WASTE OIL TANKS	Are high level tank level alarms installed to activate at 95-98% of tank capacity? Are alarms operational in accordance with PMS specs?	C				
94	TANK LEVEL INDICATORS FOR OILY WASTE AND WASTE OIL TANKS	Are tank low level alarms provided and operational in accord with PMS specifications?	C				
95	TANK LEVEL INDICATORS FOR OILY WASTE AND WASTE OIL TANKS	Are TLI primary receivers and high level alarm located in a continuously manned space?					
96	TANK LEVEL INDICATORS FOR OILY WASTE AND WASTE OIL TANKS	Are TLI secondary receivers and high level alarm located near pump controllers?					
97	TANK REQUIREMENTS	<b>** FOR INITIAL INSPECTION ONLY:</b> Are the air vents and overflow lines for the OWHT segregated?					
98	TANK REQUIREMENTS	<b>** FOR INITIAL INSPECTION ONLY:</b> Are the air vents and overflow lines for the WOT segregated?					

## OPA GENERAL CHECKLIST

CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
1	INFORMATIONAL	Are all critical items in the OPA (OPA General, OWS, OCM and membrane) checklists met?				
2	BILGE ALARMS	Has each bilge high level alarm been actuated in every space with OWT service piping and verified that a minimum of one per space is operational?	C			
3	BILGE SUCTION PIPING	Are bilge suctions protected by corrosion resistant metal strainer boxes?				
4	BILGE SUCTION PIPING	Are the box type strainers fitted on all bilge suction piping with opening dot to exceed 1/2" horizontal or 3" vertical as per GSO Section 529?				
5	CONTROL PANEL(S)	Are gaskets in place on all control panel doors (OWTP, OWS, OCM and Membrane) and in good material condition (i.e. free from cracks, leaks, and maintain seal)?				
6	CONTROL PANEL(S)	Are stuffing tubes in place around all cable penetrations for all OPA Control Panels (OWTP, OWS, OCM and Membrane)?				
7	CONTROL PANEL(S)	Are terminal connections tight and corrosion free on all OPA Control Panels (OWTP, OWS, OCM and Membrane)?				
8	CONTROL PANEL(S)	Are the OPA system control panels accessible for maintenance and operation?				
9	CONTROL PANEL(S)	Can operator observe the gauge panel and the OWS pump from the main control panel?				
10	DECK DISCHARGE CONNECTIONS AND RISERS	<b>** FOR INITIAL INSPECTION ONLY:</b> Is the piping sized to handle the maximum flow possible with all pumps running? (10 gpm pump capacity requires 1.5 in nominal pipe size, up to 15 gpm pump capacity requires 1.5-2.0 in. nominal pipe size, up to 50 gpm pump capacity requires 2.0-2.5 in nominal pipe size, up to 100 gpm requires 2.5-3.0 in nominal pipe size and up to 200 gpm pump capacity requires 3.0 to 4.0 in nominal pipe size.)				
11	DECK DISCHARGE CONNECTIONS AND RISERS	<b>** FOR INITIAL INSPECTION ONLY:</b> Is the deck discharge connection on the lowest weather deck and accessible from both port and starboard?				
12	DECK DISCHARGE CONNECTIONS AND RISERS	Are camlock quick disconnects with keeper chains installed per NAVSEA Dwg. 810-2145526 (NSN 9C 4730-00-602-3160)?				
13	DECK DISCHARGE CONNECTIONS AND RISERS	Is a 2.5 in. adapter (female cam-lock to IMO flange) onboard to allow discharge at non-Navy, commercial, or foreign ports?				
14	DECK DISCHARGE CONNECTIONS AND RISERS	Is the discharge piping for the OWT, GTD and FO stripping pumps connected to port and starboard deck risers?				
15	ELECTRICAL	Are the control panels (OWTP, OWS- Main, Remote, OCM-Main, Remote Relay, Remote Indicator in CCS and Membrane) protected and junction boxes from direct water impingement?	C			

## OPA GENERAL CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
16	ELECTRICAL	Are the solenoid/motorized valves protected from direct water impingement?	C				
17	ELECTRICAL	Is the shipboard electrical IAW MIL-E-917 (General Requirements, Electrical Insulation, Mechanical Features, etc) for all OPA system equipment?					
18	ILS	Are Allowance Parts Lists (APL) established, implemented and onboard for the OPA system equipment (OWT, OWS, OCM, Membrane)?	C				
19	ILS	Are updated (hard or electronic) copies of the required technical manuals onboard (OWT, OWS, OCM, Membrane)?	C				
20	ILS	Is the OWT, OWS, OCM and Membrane covered in the Coordinated Shipboard Allowance List (COSAL)?	C				
21	ILS	Is the Planned Maintenance System (PMS) onboard for all installed OPA equipment?	C				
22	ILS	Is/Are EOSS or Steam Plant Manual Procedures correct? <b>(Note: If EOSS or Steam Plant Manual is incorrect, the inspector should mark up EOSS or Steam Plant Manual and forward with certification report to Code 631 for revision update and provide a copy of the marked up EOSS or Steam Plant Manual to ship for interim use.)</b>	C				
23	INFORMATIONAL	Are "short lived" detergents (i.e., MIL-D-16791 (NSN 7930-00-985-6911) and/or Allied Formula P-98 (NSN 6850-01-278-4421) detergent used for bilge and deck plate cleaning? <b>(Note: The use of general purpose detergents for "long lived" for bilge and deck plate cleaning has been prohibited. If they are used onboard for bilge and deck plate cleaning, make note in comment area.)</b>					
24	INFORMATIONAL	Complete Appendix A, Shipboard Equipment Configuration Information, and submit with certification report.					
25	INFORMATIONAL						
26	NON-OILY WASTE SEGREGATION	<b>** FOR INITIAL INSPECTION ONLY:</b> Are all drains from non-oily water systems (i.e. ice makers, drinking fountains, air conditioners and cooling coils) directed to a waste water drain collecting tank (WWDCT) and pumped directly overboard by the WWDCT pump?					
27	OIL DISCHARGE PIPING	Can the OWS discharge oil to the WOT?	C				
28	OIL DISCHARGE PIPING	Is enough clearance (min. 1 foot) provided to remove the cover of the motorized ball valve (all systems except Sarex) or solenoid valve (Sarex systems)?					
29	OIL WATER SEPARATOR	Can the OWS take suction from OWHT?	C				
30	OIL WATER SEPARATOR	If the OWS pump is cross connected with the OWT pumps, is a locked closed valve in place?					

## OPA GENERAL CHECKLIST

CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
99	TANK REQUIREMENTS	<b>** FOR INITIAL INSPECTION ONLY:</b> Are the OWHT and WOT oil tight IAW Gen Spec Sections 100 and 192? (A written statement of verification from SUPSHIP is acceptable)				
100	TANK REQUIREMENTS	<b>** FOR INITIAL INSPECTION ONLY:</b> Are the OWHT and WOT provided with two manholes?				
101	TANK REQUIREMENTS	<b>** FOR INITIAL INSPECTION ONLY:</b> If OWHT and WOT air vents are combined, is the combination point above the highest tank overflow?				
102	TANK REQUIREMENTS	<b>** FOR INITIAL INSPECTION ONLY:</b> Is Cathodic protection provided at a rate of 1 anode per 80 ft <sup>2</sup> of internal tank surface IAW NAVSEA Dwg. 805-921865, ZHC-47 anodes? (A written statement of verification from SUPSHIP is acceptable)				
103	TANK REQUIREMENTS	<b>** FOR NEW CONSTRUCTION ONLY:</b> Are the tanks coated IAW NSTM 631 and do they have a minimum coating thickness of 8 mils? (A written statement of verification from SUPSHIP is acceptable)				
104	TANK REQUIREMENTS	Are air vents not less than 1.5 in. nominal pipe size and do they terminate above the weather deck in a return bend?				
105	TANK REQUIREMENTS	Is the open end of the air vent enlarged to 1.5 times the diameter of the air vent piping and fitted with double screens that can be removed for cleaning?				
106	VALVES	Are a check valve and ball valve installed on all suction terminals?				
107	VALVES	Are all OPA system valves painted black?				
108	VALVES	Are all valves accessible for operation (ie are reach rods or liftable deck plates provided for hard to reach valves)?				
109	VALVES	Are swing check valves installed in a horizontal section of pipe in a fore and aft position and oriented for the proper direction of flow?				
110	VALVES	Does each valve in the system have a label indicating the system, the valve number and valve function and reflect EOSS?	C			
111	VALVES AND PIPING	<b>** FOR INITIAL INSPECTION ONLY:</b> Are all piping and valves IAW MIL-STD 777D, Type R-1, according to Appendix B?				
112	WASTE OIL TANK	<b>** FOR INITIAL INSPECTION ONLY:</b> Does the WOT overflow to the OWHT?				
113	WASTE OIL TANK	Can the TLIs indicate oil-water and oil-air interfaces?				
114	WASTE OIL TANK	Can the WOT receive the separated oil from the OWS?	C			
115	WASTE OIL TANK	Does the WOT have an air vent and a sounding tube (MCM, MSC and MHC ship classes are excluded from the sounding tube requirement)?	C			
116	WASTE OIL TANK	Is the WOT connected to the OWT pump suction?				

## OPA GENERAL CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
117	WATER DISCHARGE PIPING	<b>** FOR INITIAL INSPECTION ONLY:</b> Is the OWS overboard discharge above the full load waterline?					
118	WATER DISCHARGE PIPING	Is enough clearance (min. 1 foot) provided to remove the cover of the motorized ball valve (all systems except Sarex) or solenoid valve (Sarex systems)?					

## OPB-10NP OIL WATER SEPARATOR CHECKLIST

CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
1	INFORMATIONAL	Are all critical items in the OWS checklist met?				
2	AIR AND WATER VENTS	Are all vent and bleed lines directed to a funnel that drains to the OWHT to avoid air encroachment?				
3	AIR AND WATER VENTS	Do all vent pipes point downward to prevent a spray hazard to personnel?	C			
4	AIR AND WATER VENTS	Is a Bivco air vent installed horizontally with the cap orientated down or has MACHALT 315 been installed replacing the Bivco air vent with a Sarco air vent downstream of the air vent isolation valve on the oil tower?				
5	AIR AND WATER VENTS	Is a water vent and isolation valve installed on the oil tower below the air vent line?				
6	CONTROL PANEL(S)	Can operator observe the gauge panel and the OWS pump from the main control panel?				
7	CONTROL PANEL(S)	Has proper operation of the controller been satisfactorily demonstrated in Automatic mode?	C			
8	CONTROL PANEL(S)	Has proper operation of the controller been satisfactorily demonstrated in Manual mode?	C			
9	CONTROL PANEL(S)	Is the audible alarm installed near the main control panel?				
10	CONTROL PANEL(S)	Is the emergency stop button operational to secure the system?	C			
11	FLOW SENSOR	Are scribe marks on the sensor mounting flanges properly aligned (probe gap parallel to flow)? (Applicable to ultrasonic type only).	C			
12	FLOW SENSOR	Is the flow sensor operational?	C			
13	FLOW SENSOR	Is the original 50 ft coaxial cable intact and not cut or spliced? (applicable to ultrasonic type only except Kay Ray Sensall Model Sephire 80000002 (with blue head).				
14	FLOW SENSOR	Is the sensor assembly mounted in a horizontal pipe run with the sensor orientated vertically and located in a way that retained pipe fluid will not flood the sensor assembly under a no flow condition?	C			
15	FLOW SENSOR	Is the top of the sensor and the cable protected from damage by a threaded metal elbow and a conduit that runs to the control panel?				
16	INTERCONNECTING AND MISCELLANEOUS PIPING	Is a cross-connection with the OWT system provided on the suction side of the OWS via a locked closed ball valve?				
17	OIL DISCHARGE PIPING	Is a hard-piped priming line with fill funnel and gate valve installed at a level above the oil tower top to ensure a good prime?				
18	OIL DISCHARGE PIPING	Is the oil discharge piping line pressure less than 25 psi?	C			
19	OIL DISCHARGE PIPING	Is there an air gap between the hard-piped priming line and the fill funnel to prevent over-pressurization of the OWS?				
20	OIL WATER SEPARATOR	Are all components installed in correct order and properly oriented in the direction of flow as per technical manual's flow or system diagram?				



## OPB-10NP OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
21	OIL WATER SEPARATOR	Do all manual valves operate satisfactorily?					
22	OIL WATER SEPARATOR	Do all solenoid and motorized valves operate properly during system operation?	C				
23	OIL WATER SEPARATOR	For dual OWS installs, are both OWSs operational?	C				
24	OIL WATER SEPARATOR	Has operation of all safety devices, indicator and warning lights, and gauges been properly demonstrated at remote stations?	C				
25	OIL WATER SEPARATOR	Has operation of all safety devices, indicator and warning lights, and gauges been properly demonstrated locally?	C				
26	OIL WATER SEPARATOR	If dual OWS install and both OWSs have a common suction line, can both OWSs be operated simultaneously?					
27	OILY WASTE HOLDING TANK	Are all OWS tank level switches in the OWHT working?	C				
28	OWS OIL SENSORS	Are the primary and backup oil sensors operational?	C				
29	OWS OIL SENSORS	Is there enough clearance and sufficient slack in the electrical lines to remove the primary and backup oil sensors without disconnecting the lines?					
30	OWS SUCTION PIPING	Are isolation ball and swing check valves installed?					
31	OWS SUCTION PIPING	Is a dedicated suction line installed from the OWHT to the OWS?					
32	OWS TANK	Are ball isolation valves installed at the OWS tank inlet, outlet, and drains?					
33	OWS TANK	Are pad eyes located above the OWS tank covers to allow cover to be raised and moved to the side?					
34	OWS TANK	Are the OWS tank drains piped to the WOT via a funnel?					
35	OWS TANK	Has the PMS for the OWS tank been completed? <b>Note:</b> If PMS can't be verified and the OWS effluent is greater than 15 ppm, then the OWS coalescing plates, zinc anodes and flow blocks should be inspected. Required to have tank cover gaskets on hand for replacement.					
36	OWS TANK	Is the influent end of the OWS foundation 3" to 5" higher than the effluent end giving a 3 degree slope?					
37	OWS TANK	Is there at least 3 feet of clearance above the OWS tank cover?					
38	PITOT TUBE	Are the pitot tube samplers free from damage?					
39	PITOT TUBE	Are the pitot tube samplers installed so that their discharge will not impinge on electrical hardware?	C				
40	PITOT TUBE: OIL DISCHARGE PIPING, PUMP DISCHARGE PIPING & WATER DISCHARGE PIPING	<b>** FOR INITIAL INSPECTION ONLY:</b> Is a pitot tube sampler installed in a vertical section of pipe, and 10 pipe diameters of unobstructed flow upstream and downstream of the sampler, (no elbows or valves) and accessible for sampling?					

## OPB-10NP OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
41	PRESSURE GAUGES	Are pressure gauges installed on either side of the strainer, between the pump discharge and OWS influent, and in the OCM sample line?					
42	PUMP ASSEMBLY	<b>** FOR NEW CONSTRUCTION SHIPS ONLY:</b> Is the axis of rotation of the OWS pump and motor horizontal and parallel to the center line of the ship?					
43	PUMP ASSEMBLY	Are all components in place for processing to occur (OWS pump, motor, foundation, guard and coupling, etc.) and are they installed, secured and operational?					
44	PUMP ASSEMBLY	Are stuffing tubes in place around cable penetrations on OWS pump?					
45	PUMP ASSEMBLY	Does the OWS pump operate without excessive noise, heat or vibration from the pump and motor?					
46	PUMP ASSEMBLY	Does the OWS pump turn freely by hand?					
47	PUMP ASSEMBLY	If a belt is used on the pump, is a belt guard installed?	C				
48	PUMP ASSEMBLY	Is the belt tension correct ( i.e.. Belt deflection of 1/4 inch when finger pressure is applied) and is belt in good material condition (i.e. free from wear, nicks, tears and cuts)?					
49	PUMP ASSEMBLY	Is the OWS pump junction box protected from direct water impingement?	C				
50	PUMP ASSEMBLY	Is the OWS pump rotation correct and is the discharge piping on top of the pump (to ensure packing is pressurized)?	C				
51	PUMP ASSEMBLY	Is the pump assembly at or below the OWS tank foundation level?					
52	PUMP PRIMING LINE	If installed, is the solenoid actuator orientated vertically and in the proper direction of flow as indicated by the directional arrow?					
53	PUMP PRIMING LINE	Is the metering valve adjusted to 0.25 GPM (1/4 turn open)?					
54	PUMP PRIMING LINE	Is the priming line at or below the separator foundation level to allow gravity feed to pump?	C				
55	PUMP PRIMING LINE	Is the pump priming line connected close to the pump suction?					
56	RELIEF VALVES	Is the relief valve discharge visible for observation by the OWS operator?					
57	RELIEF VALVES	Is the relief valve tailpiece directed to a funnel that drains to the OWHT to avoid air encroachment?					
58	REMOTE PANEL	Is the remote panel located in a continuously manned space and is it visible from the watch station?					
59	SIGHT GLASSES	Are sight glasses installed on the OWS inlet and the pump priming lines?					
60	SIGHT GLASSES	Are sight glasses installed with the glass orientated to side of pipe vice on top or installed at a 45 degree angle to avoid debris accumulation and allow for backlighting and observation?					

## OPB-10NP OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
61	SOLENOID VALVES	Is the solenoid or motorized valve protected from direct water impingement?	C				
62	STRAINER-DUPLEX OR SIMPLEX	Does an audible alarm sound and a light illuminate when the differential pressure across the strainer reaches 5 in Hg (2.5 psig)?	C				
63	STRAINER-DUPLEX OR SIMPLEX	Is the differential pressure switch mounted near the strainer and at or near strainer level?					
64	TANK LEVEL SWITCHES	Are upper and lower TLSs installed in the OWHT for automatic OWS operation?	C				
65	TANK LEVEL SWITCHES	For dual OWS installs, is an alternating control panel and switch installed to alternate OWS operation between duty and standby OWS units and it is operational?					
66	TANK LEVEL SWITCHES	For single OWS installs, is the high TLS located at approximately 50% tank capacity?					
67	TANK LEVEL SWITCHES	For single OWS installs, is the low TLS located just above the OWS suction line tailpiece?					
68	WASTE OIL BLEED LINE	Is an oil bleed line and isolation valve installed near the back-up oil sensors?					
69	WATER DISCHARGE PIPING	Is the discharge pressure less than 25 psig when pumping overboard?					

## CPS-3B15 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
1	INFORMATIONAL	Are all critical items in the OWS checklist met?					
2	AIR AND WATER VENTS	Do all vent pipes point downward to prevent a spray hazard to personnel?	C				
3	AIR AND WATER VENTS	Is an air vent provided on the OWS oil tower?					
4	CONTROL PANEL(S)	Can operator observe the gauge panel and the OWS pump from the main control panel?					
5	OIL DISCHARGE PIPING	Is the oil discharge piping line pressure less than 22 psig?	C				
6	OIL WATER SEPARATOR	Are all components installed in correct order and properly oriented in the direction of flow as per technical manual's flow or system diagram?					
7	OIL WATER SEPARATOR	Are ball isolation valves installed at the OWS tank inlet, outlet, and drains?					
8	OIL WATER SEPARATOR	Do all manual valves operate satisfactorily?					
9	OIL WATER SEPARATOR	Do all solenoid and motorized valves operate properly during system operation?	C				
10	OIL WATER SEPARATOR	Does the OWS operate in the manual mode?	C				
11	OIL WATER SEPARATOR	Does the separator have 16 inches of end clearance to remove the plates for inspection and maintenance?					
12	OIL WATER SEPARATOR	Has operation of all safety devices, indicator and warning lights, and gauges been properly demonstrated locally?	C				
13	OIL WATER SEPARATOR	If TLSs are installed, does the OWS operate in the automatic mode?	C				
14	OIL WATER SEPARATOR	Is the drain piped via a funnel to the bilge or WOT?					
15	OILY WASTE HOLDING TANK	Are all OWS tank level switches in the OWHT working?	C				
16	OWS OIL SENSORS	Are the oil sensor probes accessible for maintenance?					
17	OWS OIL SENSORS	Are the primary and backup oil sensors operational?	C				
18	OWS OIL SENSORS	Is there enough clearance and sufficient slack in the electrical lines to remove the primary and back up oil sensors without disconnecting the lines?					
19	OWS SUCTION PIPING	Are isolation ball and swing check valves installed?					
20	OWS SUCTION PIPING	Is a dedicated suction line installed from the OWHT to the OWS?					
21	OWS TANK	Has the PMS for the OWS tank been completed? <b>Note:</b> If PMS can't be verified and the OWS effluent is greater than 15 ppm, then the OWS coalescing plates, zinc anodes and flow blocks should be inspected. Required to have tank cover gaskets on hand for replacement.					
22	PITOT TUBE	Are the pitot tube samplers free from damage?					
23	PITOT TUBE	Are the pitot tube samplers installed so that their discharge will not impinge on electrical hardware?	C				

## CPS-3B15 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
24	PITOT TUBE: OIL DISCHARGE PIPING & PUMP DISCHARGE PIPING	Is a pitot tube sampler installed in a vertical section of pipe, and 10 pipe diameters of unobstructed flow upstream and downstream of the sampler, (no elbows or valves) and accessible for sampling?					
25	PUMP ASSEMBLY	Are all components in place for processing to occur (OWS pump, motor, foundation, guard and coupling, etc.) and are they installed, secured and operational?					
26	PUMP ASSEMBLY	Are stuffing tubes in place around cable penetrations on OWS pump?					
27	PUMP ASSEMBLY	Does the OWS pump operate without excessive noise, heat or vibration from the pump and motor?					
28	PUMP ASSEMBLY	Does the OWS pump turn freely by hand?					
29	PUMP ASSEMBLY	If a belt is used on the pump, is a belt guard installed?	C				
30	PUMP ASSEMBLY	Is the OWS pump junction box protected from direct water impingement?	C				
31	PUMP ASSEMBLY	Is the OWS pump provided with a suction and discharge gauge?					
32	PUMP ASSEMBLY	Is the OWS pump rotation correct and is the discharge piping on top of the pump (to ensure packing is pressurized)?	C				
33	PUMP ASSEMBLY	Is the pump assembly at or below the OWS tank foundation level?					
34	PUMP DISCHARGE PIPING	Is the flow sensor operational?	C				
35	PUMP DISCHARGE PIPING	Is the flow switch installed in a horizontal pipe run at the same level as the pump's suction/discharge port?					
36	PUMP DISCHARGE PIPING	Is the sensor located such that retained pipe fluid will not flood the sensor assembly under a no flow condition?	C				
37	PUMP DISCHARGE PIPING	Is the top of the sensor and the cable protected from damage by a threaded metal elbow and a conduit that runs to the control panel?					
38	PUMP PRIMING LINE	If a hose is provided from the OWS effluent to the pump suction, is a valve provided to prevent pressure equalization while operating?	C				
39	PUMP PRIMING LINE	Is there a hard-piped priming line with a cut-out valve connecting the seawater supply system to the OWS pump suction?					
40	RELIEF VALVES	Is a relief valve provided at the pump discharge and on the OWS tank?					
41	RELIEF VALVES	Is the relief valve discharge visible for observation by the OWS operator?					
42	RELIEF VALVES	Is the relief valve tailpiece directed to a funnel that drains to the OWHT to avoid air encroachment?					
43	SOLENOID VALVES	Are the solenoid valves installed in a horizontal pipe run with the solenoid in an upright position?					
44	SOLENOID VALVES	Is the solenoid or motorized valve protected from direct water impingement?	C				

## CPS-3B15 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
45	STRAINER-DUPLEX OR SIMPLEX	Are the gauge lines protected from inadvertent damage?					
46	STRAINER-DUPLEX OR SIMPLEX	Are the union ends of the gauge line isolation valves ¼" globe type and are they for oil and water service?					
47	SUCTION PIPING	Is the OWS suction piping cross-connected with the oily waste transfer pump suction via a locked closed ball valve?					
48	WATER DISCHARGE PIPING	Is the discharge pressure less than 22 psig when pumping overboard?					

## SAREX VGS-10 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
1	INFORMATIONAL	Are all critical items in the OWS checklist met?					
2	CONTROL PANEL(S)	Can operator observe the gauge panel and the OWS pump from the main control panel?					
3	OIL DISCHARGE PIPING	Is the oil discharge piping line pressure less than 55 psi?	C				
4	OIL WATER SEPARATOR	Are all components installed in correct order and properly oriented in the direction of flow as per technical manual's flow or system diagram?					
5	OIL WATER SEPARATOR	Do all manual valves operate satisfactorily?					
6	OIL WATER SEPARATOR	Do all solenoid and motorized valves operate properly during system operation?	C				
7	OIL WATER SEPARATOR	Has operation of all safety devices, indicator and warning lights, and gauges been properly demonstrated locally?	C				
8	OWS SUCTION PIPING	Are isolation ball and swing check valves installed?					
9	OWS SUCTION PIPING	Is a dedicated suction line installed from the OWHT to the OWS?					
10	PITOT TUBE	Are the pitot tube samplers free from damage?					
11	PITOT TUBE	Are the pitot tube samplers installed so that their discharge will not impinge on electrical hardware?	C				
12	PITOT TUBE: OIL DISCHARGE PIPING	<b>** FOR INITIAL INSPECTION ONLY:</b> Is a pitot tube sampler installed in a vertical section of pipe, and 10 pipe diameters of unobstructed flow upstream and downstream of the sampler, (no elbows or valves) and accessible for sampling?					
13	PRESSURE GAUGES	Is a pressure gauge installed on the OWS pump suction and OWS pump discharge?					
14	PUMP ASSEMBLY	Are all components in place for processing to occur (OWS pump, motor, foundation, guard and coupling, etc.) and are they installed, secured and operational?					
15	PUMP ASSEMBLY	Are stuffing tubes in place around cable penetrations on OWS pump?					
16	PUMP ASSEMBLY	Does the OWS pump operate without excessive noise, heat or vibration from the pump and motor?					
17	PUMP ASSEMBLY	Does the OWS pump turn freely by hand?					
18	PUMP ASSEMBLY	If a belt is used on the pump, is a belt guard installed?	C				
19	PUMP ASSEMBLY	Is the belt tension correct ( i.e.. Belt deflection of 1/4 inch when finger pressure is applied) and is belt in good material condition (i.e. free from wear, nicks, tears and cuts)?					
20	PUMP ASSEMBLY	Is the OWS pump junction box protected from direct water impingement?	C				
21	PUMP ASSEMBLY	Is the OWS pump rotation correct and is the discharge piping on top of the pump (to ensure packing is pressurized)?	C				

## SAREX VGS-10 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
22	RELIEF VALVES	Verify that relief valves have a valid hydrostatic test tag attached and set at 55 psig.	C				
23	SAREX ALL STAGES	Are all three vessels, associated components and piping free from water leaks?					
24	SAREX ALL STAGES	Does the sight glass have protective cages installed to prevent inadvertent breakage?					
25	SAREX ALL STAGES	If the air eliminator is replaced by a cut off valve, is it provided with a vent piped downwards to prevent a spray hazard to personnel?	C				
26	SAREX ALL STAGES	Is a drain valve installed and is it piped to the WOT?					
27	SAREX ALL STAGES	Is a sight glass installed and is it free from sludge and accessible for backlighting and observation?					
28	SAREX ALL STAGES	Is a zinc anode installed and in good material condition?					
29	SAREX ALL STAGES	Is the cover gasket material in good condition (i.e. free of cracks, leaks and maintains seal)?					
30	SAREX ALL STAGES	Is the vessel mounted to the sub base?					
31	SAREX FIRST & SECOND STAGE	Is a capacitance type level detector probe installed and operational?	C				
32	SAREX FIRST & SECOND STAGE	Is enough clearance (min. 1 foot) provided to remove the cover of the solenoid valve?					
33	SAREX FIRST STAGE	Are sampling valves installed on the inlet and outlet lines?					
34	SAREX FIRST STAGE	Are the plate assembly, sensor probe and oil drain pipe free of sludge?					
35	SAREX SECOND & THIRD STAGE	Are the o-ring and o-ring retainer installed on the filter hold down assembly in good condition (i.e. free of cracks, leaks and maintains seal)?					
36	SAREX SECOND & THIRD STAGE	If an air eliminator is installed, does it terminate to atmosphere, is it free from leaks and is a spray shield installed?					
37	SAREX SECOND STAGE	Are the filter element and sensor probe free from sludge accumulation?					
38	SAREX SECOND STAGE	Is a sampling valve installed on the discharge pipe?					
39	SAREX THIRD STAGE	Are the filter element and oil drain pipe free from sludge?					
40	SAREX THIRD STAGE	Is a 1" ball valve installed to drain oil to the WOT?					
41	SOLENOID VALVES	Are Asco vice Marotta valves installed?					
42	SOLENOID VALVES	Are the solenoid valves properly oriented in the direction of flow?					
43	SOLENOID VALVES	Is the solenoid or motorized valve protected from direct water impingement?	C				
44	STRAINER-DUPLEX OR SIMPLEX	Can the coaming for the strainer foundation be drained?					
45	TANK LEVEL SWITCHES	Is lower TLS installed in the OWHT for auto shutdown?					
46	WATER DISCHARGE PIPING	Is a second and third stage bypass with a cutoff valve installed?					



## SAREX VGS-10 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
47	WATER DISCHARGE PIPING	Is the discharge pressure less than 55 psig when pumping overboard?					

## C50 RF01 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
1	INFORMATIONAL	Are all critical items in the OWS checklist met?					
2	AIR AND WATER VENTS	Are all vent and bleed lines directed to a funnel that drains to the OWHT to avoid air encroachment?					
3	AIR AND WATER VENTS	Can the air vent be secured or blanked?					
4	AIR AND WATER VENTS	Do all vent pipes point downward to prevent a spray hazard to personnel?	C				
5	AIR AND WATER VENTS	Is the air vent line in a vertical line above the top section of the oil tower and provided with an isolation valve?					
6	AIR AND WATER VENTS	Is the water vent line installed above the top section of the oil tower and provided with an isolation valve?					
7	CONTROL PANEL(S)	Can operator observe the gauge panel and the OWS pump from the main control panel?					
8	CONTROL PANEL(S)	Has proper operation of the controller been satisfactorily demonstrated in Automatic mode?	C				
9	CONTROL PANEL(S)	Has proper operation of the controller been satisfactorily demonstrated in Manual mode?	C				
10	FIRE MAIN (BACK FLUSH) PIPING	Are all components installed in correct order: main cutout gate valve, pressure reducing station, check valve, relief valve, isolation gate valves and an automatic solenoid valve?					
11	FIRE MAIN (BACK FLUSH) PIPING	Is the discharge from the back flush relief valve piped downwards to prevent spray hazard?	C				
12	FIRE MAIN (BACK FLUSH) PIPING	Is the pressure reducing station installed and provided with: (1) A pressure reducing valve set at 15 psig? (2) Cut off valves upstream and downstream of the pressure reducing valve? (3) A by pass line with a globe valve and a locking device? (4) Inlet and outlet pressure gauges? (Ships with wing tanks may have pressure reducing valve set at 20 psig)					
13	FIRE MAIN (BACK FLUSH) PIPING	Is the relief valve discharge visible for observation by the OWS operator?					
14	FIRE MAIN (BACK FLUSH) PIPING	Is the relief valve tailpiece directed to a funnel that drains to the OWHT to avoid air encroachment?					
15	INTERCONNECTING AND MISCELLANEOUS PIPING	Is a cross-connection with the OWT system provided on the suction side of the OWS via a locked closed ball valve?					
16	OIL DISCHARGE PIPING	Are cross connect valves installed between the port and starboard WOTs for all installs with more than 2 WOTs?					
17	OIL DISCHARGE PIPING	Is the oil discharge piping line pressure less than 25 psi?	C				
18	OIL WATER SEPARATOR	Are all components installed in correct order and properly oriented in the direction of flow as per technical manual's flow or system diagram?					

## C50 RF01 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
19	OIL WATER SEPARATOR	Can OWS be operated at approximately 50 and 100 GPM in automatic mode? (at 50 GPM on CVN-71 and CVN-72, and at 50 and 100 GPM for CV-63 and CVN-65)	C				
20	OIL WATER SEPARATOR	Can OWS be operated in manual mode? (at 50 GPM on CVN-71 and CVN-72, and at 50 and 100 GPM for CV-63 and CVN-65)	C				
21	OIL WATER SEPARATOR	Do all manual valves operate satisfactorily?					
22	OIL WATER SEPARATOR	Do all solenoid and motorized valves operate properly during system operation?	C				
23	OIL WATER SEPARATOR	For dual OWS installs, are both OWSs operational?	C				
24	OIL WATER SEPARATOR	Has operation of all safety devices, indicator and warning lights, and gauges been properly demonstrated at remote stations?	C				
25	OIL WATER SEPARATOR	Has operation of all safety devices, indicator and warning lights, and gauges been properly demonstrated locally?	C				
26	OIL WATER SEPARATOR	If dual OWS install and both OWSs have a common suction line, can both OWSs be operated simultaneously?					
27	OILY WASTE HOLDING TANK	Are all OWS tank level switches in the OWHT working?	C				
28	OWS BACKFLUSH PIPING	Is the solenoid valve orientated vertically? (Upright)					
29	OWS OIL SENSORS	Are the primary and backup oil sensors operational?	C				
30	OWS OIL SENSORS	Is there enough clearance and sufficient slack in the electrical lines to remove the primary and back up oil sensors without disconnecting the lines?					
31	OWS SUCTION PIPING	Are isolation ball and swing check valves installed?					
32	OWS SUCTION PIPING	Is a dedicated suction line installed from the OWHT to the OWS?					
33	OWS SUCTION PIPING	Is a full port ball isolation valve installed between OWS A and OWS B?					
34	OWS SUCTION PIPING	Is an electric motor operated valve installed upstream of the OWS isolation valve? (Only required for OWHT wing tanks).					
35	OWS TANK	Are ball isolation valves installed at the OWS tank inlet, outlet, and drains?					
36	OWS TANK	Are pad eyes located above the OWS tank covers to allow cover to be raised and moved to the side?					
37	OWS TANK	Are the OWS tank drains piped to the WOT via a funnel?					
38	OWS TANK	Has the PMS for the OWS tank been completed? <b>Note:</b> If PMS can't be verified and the OWS effluent is greater than 15 ppm, then the OWS coalescing plates, zinc anodes and flow blocks should be inspected. Required to have tank cover gaskets on hand for replacement.					
39	OWS TANK	Is a cleaning wand accessible and provided with a storage rack and water source?					

## C50 RF01 OIL WATER SEPARATOR CHECKLIST

CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
40	OWS TANK	Is the separator tank assembly securely mounted to the foundation?				
41	OWS TANK	Is there at least 24 inches of access space all around the unit?				
42	PITOT TUBE	Are the pitot tube samplers free from damage?				
43	PITOT TUBE	Are the pitot tube samplers installed so that their discharge will not impinge on electrical hardware?	C			
44	PITOT TUBE: OIL DISCHARGE PIPING, OWS SUCTION PIPING & WATER DISCHARGE PIPING	<b>** FOR INITIAL INSPECTION ONLY:</b> Is a pitot tube sampler installed in a vertical section of pipe, and 10 pipe diameters of unobstructed flow upstream and downstream of the sampler, (no elbows or valves) and accessible for sampling?				
45	PRESSURE GAUGES	Are pressure gauges installed on either side of the strainer, between the pump discharge and OWS influent, and in the OCM sample line?				
46	PUMP ASSEMBLY	<b>** FOR NEW CONSTRUCTION SHIPS ONLY:</b> Is the axis of rotation of the OWS pump and motor horizontal and parallel to the center line of the ship?				
47	PUMP ASSEMBLY	Are all components in place for processing to occur (OWS pump, motor, foundation, guard and coupling, etc.) and are they installed, secured and operational?				
48	PUMP ASSEMBLY	Are stuffing tubes in place around cable penetrations on OWS pump?				
49	PUMP ASSEMBLY	Does motor (A) rotate counterclockwise when looking from the cover end of the pumps? (Motor A is closest to oil tower).	C			
50	PUMP ASSEMBLY	Does motor (B) rotate clockwise when looking from the cover end of the pumps? (Motor B is further from oil tower)	C			
51	PUMP ASSEMBLY	Does the OWS pump operate without excessive noise, heat or vibration from the pump and motor?				
52	PUMP ASSEMBLY	Is the OWS pump junction box protected from direct water impingement?	C			
53	RELIEF VALVES	Is a relief valve installed downstream of the OWS pumps and set relieve at 25 psig and does it reset to protect the pumps?	C			
54	RELIEF VALVES	Is the discharge from the effluent relief valve piped downwards to prevent spray hazard?	C			
55	RELIEF VALVES	Is the relief valve discharge visible for observation by the OWS operator?				
56	RELIEF VALVES	Is the relief valve tailpiece directed to a funnel that drains to the OWHT to avoid air encroachment?				
57	REMOTE PANEL	Is the remote panel located in a continuously manned space and is it visible from the watch station?				
58	SIGHT GLASSES	Are sight glasses installed with the glass orientated to side of pipe vice on top or installed at a 45 degree angle to avoid debris accumulation and allow for backlighting and observation?				

## C50 RF01 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
59	SOLENOID VALVES	Is the solenoid or motorized valve protected from direct water impingement?	C				
60	TANK LEVEL SWITCHES	Are safe-paks used?					
61	TANK LEVEL SWITCHES	Are upper and lower TLSs installed in the OWHT for automatic OWS operation?	C				
62	TANK LEVEL SWITCHES	For dual OWS installs, is an alternating control panel and switch installed to alternate OWS operation between duty and standby OWS units and it is operational?					
63	TANK LEVEL SWITCHES	For single OWS installs, is the high TLS located at approximately 50% tank capacity?					
64	TANK LEVEL SWITCHES	For single OWS installs, is the low TLS located just above the OWS suction line tailpiece?					
65	WASTE OIL BLEED LINE	Is a globe valve installed in the waste oil bleed line above the OWS tank cover (opposite of oil tower)?					
66	WATER DISCHARGE PIPING	Is the discharge pressure less than 25 psig when pumping overboard?					

## C50 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
1	INFORMATIONAL	Are all critical items in the OWS checklist met?					
2	AIR AND WATER VENTS	Are all vent and bleed lines directed to a funnel that drains to the OWHT to avoid air encroachment?					
3	AIR AND WATER VENTS	Can the air vent be secured or blanked?					
4	AIR AND WATER VENTS	Do all vent pipes point downward to prevent a spray hazard to personnel?	C				
5	AIR AND WATER VENTS	Is the air vent line in a vertical line above the top section of the oil tower and provided with an isolation valve?					
6	AIR AND WATER VENTS	Is the water vent line installed above the top section of the oil tower and provided with an isolation valve?					
7	CONTROL PANEL(S)	Can operator observe the gauge panel and the OWS pump from the main control panel?					
8	CONTROL PANEL(S)	Has proper operation of the controller been satisfactorily demonstrated in Automatic mode?	C				
9	CONTROL PANEL(S)	Has proper operation of the controller been satisfactorily demonstrated in Manual mode?	C				
10	FIRE MAIN (BACK FLUSH) PIPING	Are all components installed in correct order: main cutout gate valve, pressure reducing station, check valve, relief valve, isolation gate valves and an automatic solenoid valve?					
11	FIRE MAIN (BACK FLUSH) PIPING	Is the discharge from the back flush relief valve piped downwards to prevent spray hazard?	C				
12	FIRE MAIN (BACK FLUSH) PIPING	Is the pressure reducing station installed and provided with: (1) A pressure reducing valve set at 15 psig? (2) Cut off valves upstream and downstream of the pressure reducing valve? (3) A by pass line with a globe valve and a locking device? (4) Inlet and outlet pressure gauges? (Ships with wing tanks may have pressure reducing valve set at 20 psig)					
13	FIRE MAIN (BACK FLUSH) PIPING	Is the relief valve discharge visible for observation by the OWS operator?					
14	FIRE MAIN (BACK FLUSH) PIPING	Is the relief valve tailpiece directed to a funnel that drains to the OWHT to avoid air encroachment?					
15	INTERCONNECTING AND MISCELLANEOUS PIPING	Is a cross-connection with the OWT system provided on the suction side of the OWS via a locked closed ball valve?					
16	OIL DISCHARGE PIPING	Are cross connect valves installed between the port and starboard WOTs for all installs with more than 2 WOTs?					
17	OIL DISCHARGE PIPING	Is the oil discharge piping line pressure less than 25 psi?	C				
18	OIL WATER SEPARATOR	Are all components installed in correct order and properly oriented in the direction of flow as per technical manual's flow or system diagram?					
19	OIL WATER SEPARATOR	Do all manual valves operate satisfactorily?					

## C50 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
20	OIL WATER SEPARATOR	Do all solenoid and motorized valves operate properly during system operation?	C				
21	OIL WATER SEPARATOR	For dual OWS installs, are both OWSs operational?	C				
22	OIL WATER SEPARATOR	Has operation of all safety devices, indicator and warning lights, and gauges been properly demonstrated locally?	C				
23	OIL WATER SEPARATOR	If dual OWS install and both OWSs have a common suction line, can both OWSs be operated simultaneously?					
24	OILY WASTE HOLDING TANK	Are all OWS tank level switches in the OWHT working?	C				
25	OWS BACKFLUSH PIPING	Is the solenoid valve orientated vertically? (Upright)					
26	OWS OIL SENSORS	Are the primary and backup oil sensors operational?	C				
27	OWS OIL SENSORS	Is there enough clearance and sufficient slack in the electrical lines to remove the primary and back up oil sensors without disconnecting the lines?					
28	OWS SUCTION PIPING	Are isolation ball and swing check valves installed?					
29	OWS SUCTION PIPING	Is a dedicated suction line installed from the OWHT to the OWS?					
30	OWS SUCTION PIPING	Is a full port ball isolation valve installed between OWS A and OWS B?					
31	OWS SUCTION PIPING	Is an electric motor operated valve installed upstream of the OWS isolation valve? (Only required for OWHT wing tanks).					
32	OWS TANK	Are ball isolation valves installed at the OWS tank inlet, outlet, and drains?					
33	OWS TANK	Are pad eyes located above the OWS tank covers to allow cover to be raised and moved to the side?					
34	OWS TANK	Are the OWS tank drains piped to the WOT via a funnel?					
35	OWS TANK	Has the PMS for the OWS tank been completed? <b>Note:</b> If PMS can't be verified and the OWS effluent is greater than 15 ppm, then the OWS coalescing plates, zinc anodes and flow blocks should be inspected. Required to have tank cover gaskets on hand for replacement.					
36	OWS TANK	Is a cleaning wand accessible and provided with a storage rack and water source?					
37	OWS TANK	Is the separator tank assembly securely mounted to the foundation?					
38	OWS TANK	Is there at least 24 inches of access space all around the unit?					
39	PITOT TUBE	Are the pitot tube samplers free from damage?					
40	PITOT TUBE	Are the pitot tube samplers installed so that their discharge will not impinge on electrical hardware?	C				

## C50 OIL WATER SEPARATOR CHECKLIST

CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
41	PITOT TUBE: OIL DISCHARGE PIPING, OWS SUCTION PIPING & WATER DISCHARGE PIPING	<b>** FOR INITIAL INSPECTION ONLY:</b> Is a pitot tube sampler installed in a vertical section of pipe, and 10 pipe diameters of unobstructed flow upstream and downstream of the sampler, (no elbows or valves) and accessible for sampling?				
42	PRESSURE GAUGES	Are pressure gauges installed on either side of the strainer, between the pump discharge and OWS influent, and in the OCM sample line?				
43	PUMP ASSEMBLY	<b>** FOR NEW CONSTRUCTION SHIPS ONLY:</b> Is the axis of rotation of the OWS pump and motor horizontal and parallel to the center line of the ship?				
44	PUMP ASSEMBLY	Are all components in place for processing to occur (OWS pump, motor, foundation, guard and coupling, etc.) and are they installed, secured and operational?				
45	PUMP ASSEMBLY	Are stuffing tubes in place around cable penetrations on OWS pump?				
46	PUMP ASSEMBLY	Does motor (A) rotate counterclockwise when looking from the cover end of the pumps? (Motor A is closest to oil tower).	C			
47	PUMP ASSEMBLY	Does motor (B) rotate clockwise when looking from the cover end of the pumps? (Motor B is further from oil tower)	C			
48	PUMP ASSEMBLY	Does the OWS pump operate without excessive noise, heat or vibration from the pump and motor?				
49	PUMP ASSEMBLY	Is a three-way manual valve installed between the two OWS pumps?				
50	PUMP ASSEMBLY	Is the OWS pump junction box protected from direct water impingement?	C			
51	RELIEF VALVES	Is a relief valve installed downstream of the OWS pumps and set relieve at 25 psig and does it reset to protect the pumps?	C			
52	RELIEF VALVES	Is the discharge from the effluent relief valve piped downwards to prevent spray hazard?	C			
53	RELIEF VALVES	Is the relief valve discharge visible for observation by the OWS operator?				
54	RELIEF VALVES	Is the relief valve tailpiece directed to a funnel that drains to the OWHT to avoid air encroachment?				
55	SIGHT GLASSES	Are sight glasses installed with the glass orientated to side of pipe vice on top or installed at a 45 degree angle to avoid debris accumulation and allow for backlighting and observation?				
56	SOLENOID VALVES	Is the solenoid or motorized valve protected from direct water impingement?	C			
57	TANK LEVEL SWITCHES	Are safe-paks used?				
58	TANK LEVEL SWITCHES	Are upper and lower TLSs installed in the OWHT for automatic OWS operation?	C			
59	TANK LEVEL SWITCHES	For dual OWS installs, is an alternating control panel and switch installed to alternate OWS operation between duty and standby OWS units and it is operational?				



### C50 OIL WATER SEPARATOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
60	TANK LEVEL SWITCHES	For single OWS installs, is the high TLS located at approximately 50% tank capacity?					
61	TANK LEVEL SWITCHES	For single OWS installs, is the low TLS located just above the OWS suction line tailpiece?					
62	WASTE OIL BLEED LINE	Is a globe valve installed in the waste oil bleed line above the OWS tank cover (opposite of oil tower)?					
63	WATER DISCHARGE PIPING	Is the discharge pressure less than 25 psig when pumping overboard?					

## ET-35N OIL CONTENT MONITOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
1	INFORMATIONAL	Are all critical items in the OCM checklist met?					
2	ELECTRICAL	Is the power source 115 VAC, single-phase, 60 Hz, 12 amps?					
3	ELECTRICAL	Is the sample discharge installed so that it will not impinge on electrical hardware?	C				
4	NOZZLE SAMPLER	Is the nozzle sampler installed on the discharge line between the OWS/secondary system outlet and the diverter valve?	C				
5	NOZZLE SAMPLER	Is the nozzle sampler installed in a vertical discharge pipe with the flow going upward?	C				
6	NOZZLE SAMPLER	Is the nozzle sampler installed in good material condition (free from holes, cracks and unclogged)?	C				
7	NOZZLE SAMPLER	Is the nozzle sampler installed with the sampling ports facing the flow in the pipe?	C				
8	NOZZLE SAMPLER	Is the nozzle sampler located at least 10 pipe diameters upstream and downstream from any change in flow direction?					
9	OCM FLUSHING	Are an isolation valve, pressure reducing station and check valve installed on the OCM flushing water supply line?					
10	OCM FLUSHING	Are OCM flushing water isolation valves free from leak by?	C				
11	OCM FLUSHING	Does the installed flushing line provide flushing water between 10 and 15 psig?					
12	OCM FLUSHING	Does the OCM read 0 to 5 ppm when aligned to flushing water?	C				
13	OIL CONTENT MONITOR	Are the three warning lights on the sampling/sensor door extinguished when the system is operating? ( <b>Note:</b> If flushing water clears warning light(s), OCM operation is acceptable.)	C				
14	OIL CONTENT MONITOR	Can a high-pitched sound and the sound of two valves clicking be heard within 15 second intervals when the system is operating?	C				
15	OIL CONTENT MONITOR	Can the 15/70 ppm alarm set point be switched from the remote alarm panel (PACC for DD-963 class) when the sampling sensor panel is in REMOTE mode? (Or 15/200 ppm for secondary OCMs for the DDG class ships)	C				
16	OIL CONTENT MONITOR	Does the 15/70 ppm alarm set point change when the alarm limit toggle is switched in the sampling sensor panel? (Or 15/200 ppm for secondary OCMs for the DDG class).	C				
17	OIL CONTENT MONITOR	Does the flow stop when the OCM is de-energized?	C				
18	OIL CONTENT MONITOR	Does the OCM energize in AUTO mode at an inlet pressure of $5 \pm 1$ psig?	C				
19	OIL CONTENT MONITOR	Does the OCM energize in the TEST (Manual) mode?	C				

## ET-35N OIL CONTENT MONITOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
20	OIL CONTENT MONITOR	Does the OCM exhibit slight fluctuations (Not to Exceed +/- 5 ppm in port, +/- 10 ppm at sea) in ppm reading consistent with normal operation? (Note: Normal OCM operation includes slight fluctuations within several ppm at successive readings. OCM ppm reading should not be completely stable nor greater than parameters above during normal operation.)	C				
21	OIL CONTENT MONITOR	Does the OCM gravity drain and is it free from any head pressure?	C				
22	OIL CONTENT MONITOR	Does the OCM have a calibrated matched set as indicated by same calibration number on the Sample Detection Assembly (SDA) and the Processor Printed Circuit Board (PCB)?	C				
23	OIL CONTENT MONITOR	Does the OCM have an Elapsed Time Indicator (ETI) that reads less than 2000 hours and a calibration sticker that is not expired?	C				
24	OIL CONTENT MONITOR	Does the OCM trigger the 3-way diverter valve to recirculate unacceptable effluent back to the OWHT?	C				
25	OIL CONTENT MONITOR	Does the remote indicator panel show a digital ppm readout, power on, alarm limit and alarm status consistent with the indicators of the sampling sensor assembly? (Not applicable for DD-963 class.)	C				
26	OIL CONTENT MONITOR	Does the sampling sensor door show power, oil content and 15 or 70 ppm range? (Or 15/200 ppm for secondary OCMs for the DDG class)	C				
27	OIL CONTENT MONITOR	Is a drain funnel installed at the OCM discharge leading to the OWHT or bilges with an air gap of 4" to 5"?					
28	OIL CONTENT MONITOR	Is discharge from the sensor/control enclosure assembly drain line visible for observation by the operator?					
29	OIL CONTENT MONITOR	Is the drain funnel provided with a check valve?					
30	OIL CONTENT MONITOR	Is the micro-switch on the ET-35N PCB (upper right corner) in the "ON" position?	C				
31	OIL CONTENT MONITOR	Is the OCM discharge line less than 36" long to prevent a siphoning effect?	C				
32	OIL CONTENT MONITOR	Is the pressure in the sampling line at the sampling/sensor assembly between 5 and 15 psig during both the overboard and recirculation modes? (An orifice plate may be required to produce back pressures between 5 and 15 psig. Note: CV-63 and CVN-65 pressure range can be 5 to 23 psig.)	C				
33	OIL CONTENT MONITOR	Is the sample detection assembly free from leaks?					
34	OIL CONTENT MONITOR	Is there constant flow through the sampling sensor discharge when the OCM is energized?	C				

## ET-35N OIL CONTENT MONITOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
35	OIL CONTENT MONITOR	With the flushing water aligned, when the check switch located inside the sampling sensor is held in the up position:(1) Does the control panel indicate high oil content within 20 seconds? (2) Does the OWS flow divert to the OWHT within 30 seconds with the fail-safe mod. installed (within 80 seconds without the fail-safe mod)? (3) Do all the red LEDs flash on the OCM main control panel display? (4) Does an audible alarm sound at the remote panel? (5) When the switch is released, do all items revert back to previous condition?	C				
36	PRESSURE GAUGES	Are pressure gauges installed, free from damage, operational, calibrated and marked with current stickers?					
37	PRESSURE GAUGES	Is a 0 to 30 psig pressure gauge installed downstream of the connection between the sampling and flushing lines? <b>Note:</b> 0 to 60 psig pressure gauge is acceptable.					
38	PRESSURE REDUCING STATIONS	Is the pressure reducing station provided with: (1) A pressure reducing valve? (2) Cut off valves upstream and downstream of the pressure reducing valve? (3) A bypass line with a globe valve and a locking device? (4) Inlet and outlet pressure gauges? (5) A y-strainer? (6) A relief valve? <b>NOTE:</b> Relief valve may be installed at OCM inlet line.					
39	PRESSURE REDUCING STATIONS	Is the pressure reducing station set at 15 (+/- 3) psig?	C				
40	RELIEF VALVES	Are the relief valve tailpieces directed to a funnel that drains to the OWHT to avoid air encroachment?					
41	RELIEF VALVES	Is the relief valve discharge visible for observation by the OWS operator?					
42	RELIEF VALVES	Is the relief valve set at 20 psig? ( <b>Note:</b> CV-63 and CVN-65 may go up to 23 psig to accommodate a pressure sustaining valve installed for dual flow rates.)	C				
43	THREE-WAY DIVERTER VALVE	Does the OCM repeatedly cycle the diverter valve when alarm condition is simulated by holding check switch inside sampling sensor? ( <b>Note:</b> A resistor may be required in diverter valve junction box to ensure that diverter valve responds appropriately whenever OCM alarms.)	C				
44	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve accessible for maintenance and repair?					
45	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve installed to divert flow to the OWHT when: (1) de-energized (with the fail-safe mod. Installed-ECP 483), or (2) energized (without the fail-safe mod. installed)?	C				
46	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve installed upright?	C				
47	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve provided with a dual light indicator to show the valve position?					

## ET-35N OIL CONTENT MONITOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
48	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve provided with a locking device?					
49	VALVES	Is a sampling valve installed on the OCM sample inlet downstream of the connection between the sampling and flushing lines?					
50	VALVES	Is a valve installed on the OCM inlet line downstream of the pressure gauge to completely isolate the sampling/sensor assembly?					
51	VALVES	Are an isolation valve and check valve installed between the OWS discharge and OCM inlet piping?					

## WORLD WATER SYSTEMS OIL CONTENT MONITOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
1	INFORMATIONAL	Are all critical items in the OCM checklist met?					
2	ELECTRICAL	Is the power source 115 VAC, single-phase, 60 Hz, 12 amps?					
3	ELECTRICAL	Is the sample discharge installed so that it will not impinge on electrical hardware?	C				
4	MECHANICAL INSTALL	Is a "tell tale" placard, as a result of design modification, posted on the sensor/control enclosure assembly drain line?					
5	NOZZLE SAMPLER	Is the nozzle sampler installed on the discharge line between the OWS/secondary system outlet and the diverter valve?	C				
6	NOZZLE SAMPLER	Is the nozzle sampler installed in a vertical discharge pipe with the flow going upward?	C				
7	NOZZLE SAMPLER	Is the nozzle sampler installed in good material condition (free from holes, cracks and unclogged)?	C				
8	NOZZLE SAMPLER	Is the nozzle sampler installed with the sampling ports facing the flow in the pipe?	C				
9	NOZZLE SAMPLER	Is the nozzle sampler located at least 10 pipe diameters upstream and downstream from any change in flow direction?					
10	OCM FLUSHING	Are an isolation valve, pressure reducing station and check valve installed on the OCM flushing water supply line?					
11	OCM FLUSHING	Are OCM flushing water isolation valves free from leak by?	C				
12	OCM FLUSHING	Does a flushing cycle initiate at start-up, shut-down, and programmed intervals?	C				
13	OCM FLUSHING	Does the installed flushing line provide flushing water at 35 psig?					
14	OCM FLUSHING	Does the OCM read 0 to 5 ppm when aligned to flushing water?	C				
15	OCM FLUSHING	Is a valve installed on a cross-connect line between the OCM sample line and the OCM flush line?					
16	OIL CONTENT MONITOR	Are the sensor alarm indicators on the sensor/control enclosure assembly door extinguished?	C				
17	OIL CONTENT MONITOR	Does the 15/70 ppm alarm set point change when the alarm limit toggle is switched in the sampling sensor panel? (Or 15/200 ppm for secondary OCMs for the DDG class).	C				
18	OIL CONTENT MONITOR	Does the emulsifying pump turning on and off within 20 second cycle?	C				
19	OIL CONTENT MONITOR	Does the low flow indicator illuminate when there is no flow?	C				
20	OIL CONTENT MONITOR	Does the OCM trigger the 3-way diverter valve to recirculate unacceptable effluent back to the OWHT?	C				
21	OIL CONTENT MONITOR	Does the remote indicator panel show power on, alarm limit and alarm status consistent with the indicators of the sampling sensor assembly?	C				
22	OIL CONTENT MONITOR	Does the sensor/control enclosure door show digital display, discharge status, operation status and set point status?	C				
23	OIL CONTENT MONITOR	Have the design modifications been made through AER or during install?	C				

## WORLD WATER SYSTEMS OIL CONTENT MONITOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
24	OIL CONTENT MONITOR	In the Alarms Menu, confirm the in port alarm is set at 15 ppm and the at sea alarm set at 70 ppm?	C				
25	OIL CONTENT MONITOR	In the Utilities Menu, confirm the emulsifier off time is set to 12 seconds?	C				
26	OIL CONTENT MONITOR	Is a drain funnel installed at the OCM discharge leading to the OWHT or bilges with an air gap of 4" to 5"?					
27	OIL CONTENT MONITOR	Is discharge from the sensor/control enclosure assembly drain line visible for observation by the operator?					
28	OIL CONTENT MONITOR	Is the drain funnel provided with a check valve?					
29	OIL CONTENT MONITOR	Is the OCM discharge line less than 36" long to prevent a siphoning effect?	C				
30	OIL CONTENT MONITOR	Is the OCM LCD displaying "MAIN MENU" when energized and the operation selector switch is in the off position?	C				
31	OIL CONTENT MONITOR	Is the OCM sampling sensor enclosure free from leaks?					
32	OIL CONTENT MONITOR	Is the oil content indication free from fluctuations greater than $\pm 5$ ppm?					
33	OIL CONTENT MONITOR	Is the pressure in the sampling line at the sampling sensor enclosure or pressure sustaining valve between 10 and 25 psig during both the overboard and recirculation modes? (If not within pressure range, an orifice plate may be required.)	C				
34	OIL CONTENT MONITOR	Is the sample cuvette clean and free from cracks?					
35	OIL CONTENT MONITOR	Is there constant flow through the sampling sensor discharge when the OCM is energized?	C				
36	OIL CONTENT MONITOR	When the lamp module inside the sensor/control enclosure is removed: (1) Does the sensor alarm indicator illuminate and the audible alarm sound within 20 seconds? (2) Does the OWS flow divert to the OWHT? (3) Are all indicators operating? (4) Does an audible alarm sound at the remote panel?	C				
37	OIL CONTENT MONITOR	When the operation selector switch is in AUTO position: (1) Is the OCM LCD displaying "STANDBY MODE" when the OWS is not operating? (2) Is the OCM LCD displaying a ppm reading when the OWS is operating and flow to the OCM is available?	C				
38	OIL CONTENT MONITOR	When the operation selector switch is in the MANUAL position: (1) Is the OCM LCD displaying "Low Flow" when no flow is available? (2) Is the OCM LCD displaying a ppm reading when flow is available?	C				
39	PRESSURE GAUGES	Are pressure gauges installed, free from damage, operational, calibrated and marked with current stickers?					
40	PRESSURE GAUGES	Is a 0-60 psig pressure gauge installed downstream of the connection between the sampling and flushing lines?					

## WORLD WATER SYSTEMS OIL CONTENT MONITOR CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
41	PRESSURE REDUCING STATIONS	Is the pressure reducing station provided with a pressure reducing valve set at 35 psig?	C				
42	PRESSURE REDUCING STATIONS	Is the pressure reducing station provided with: (1) A pressure reducing valve? (2) Cut off valves upstream and downstream of the pressure reducing valve? (3) A bypass line with a globe valve and a locking device? (4) Inlet and outlet pressure gauges? (5) A y-strainer? (6) A relief valve? <b>NOTE:</b> Relief valve may be installed at OCM inlet line.					
43	RELIEF VALVES	Are the relief valve tailpieces directed to a funnel that drains to the OWHT to avoid air encroachment?					
44	RELIEF VALVES	Is the relief valve discharge visible for observation by the OWS operator?					
45	RELIEF VALVES	Is the relief valve set at 40 psig?	C				
46	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve accessible for maintenance and repair?					
47	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve installed to divert flow to the OWHT when: (1) de-energized (with the fail-safe mod. installed-ECP 483), or (2) energized (without the fail-safe mod. installed)?	C				
48	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve installed upright?	C				
49	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve provided with a dual light indicator to show the valve position?					
50	THREE-WAY DIVERTER VALVE	Is the 3-way diverter valve provided with a locking device?					
51	VALVES	Is a gate valve installed on the OCM sample inlet line downstream of the pressure gauge to completely isolate the sensor/control enclosure assembly?					
52	VALVES	Is a sampling valve installed on the OCM sample inlet downstream of the connection between the sampling and flushing lines?					
53	VALVES	Is a valve installed on the OCM inlet line downstream of the pressure gauge to completely isolate the sampling/sensor assembly?					
54	VALVES	Are an isolation valve and check valve installed between the OWS discharge and OCM inlet piping?					



## ULTRAFILTRATION MEMBRANE CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
1	INFORMATIONAL	Have all critical items in the Membrane Polishing System checklist been checked?					
2	ALARM CONDITIONS	Does the "Backflush Failure" warning work?	C				
3	ALARM CONDITIONS	Does the "Bleed Failure" warning work?	C				
4	ALARM CONDITIONS	Does the "Clean Membranes" warning work?	C				
5	ALARM CONDITIONS	Does the "Clean Strainer" warning work?	C				
6	ALARM CONDITIONS	Does the "Feed Pump Overload" alarm work?	C				
7	ALARM CONDITIONS	Does the "High loop temp" alarm work?	C				
8	ALARM CONDITIONS	Does the "Loop Blockage/Air Loss" alarm work?	C				
9	ALARM CONDITIONS	Does the "Loop Pressure Low" alarm work?	C				
10	ALARM CONDITIONS	Does the "Loop Pressure Overload" alarm work?	C				
11	ALARM CONDITIONS	Does the "Recirc Pump Overload" alarm work?	C				
12	ALARM CONDITIONS	Does the "Sensor Failure" alarm work?	C				
13	CONCENTRATE DISCHARGE PIPING	Does a potable water pressure of 30 psi (as indicated by panel meters 2PI01 and 2PI02 with the system in "OFF" and 3WV01 open) induce >4 gpm flow through flush valve 2FV01?					
14	CONCENTRATE DISCHARGE PIPING	Does Bleed flow meter 2FM02 work?	C				
15	CONCENTRATE DISCHARGE PIPING	Does the bleed valve, 2BV01, operate manually?	C				
16	CONCENTRATE DISCHARGE PIPING	Does the flush valve, 2FV01, operate manually?	C				
17	CONCENTRATE DISCHARGE PIPING	Is the concentrate discharge piped to the WOT?	C				
18	CONCENTRATE DISCHARGE PIPING	Is the feed tank overflow piped to the OWHT?	C				
19	CONCENTRATE DISCHARGE PIPING	Is the flush line piped to the OWHT?					
20	CONCENTRATE DISCHARGE PIPING	Is the oil line discharge pressure less than 25 psi during operation?	C				
21	CONTROL PANEL(S)	Is the audible alarm installed near the main control panel?					
22	FEED PUMP ASSEMBLY	Is the pump junction box protected from direct water impingement?					
23	FEED PUMP ASSEMBLY	Is the pump rotation correct?	C				
24	ILS	Have the damage control book and the damage control plates been updated to reflect the installation?					
25	OPERATION	Do all alarm lights operate when lamp test button is pushed?	C				
26	OPERATION	Do all manual valves operate satisfactorily?					
27	OPERATION	Do all pressure, temperature, and flow indicators on the meter panel operate?	C				
28	OPERATION	Do all solenoid and motorized valves operate properly during system operation?	C				
29	OPERATION	Do all the "mode" indicator lights on the control panel operate at the right time?	C				
30	OPERATION	Do all valve and motor indicator lights on the control panel operate at the right time?	C				
31	OPERATION	Do all warning lights operate?					

## ULTRAFILTRATION MEMBRANE CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
32	OPERATION	Does the membrane clean mode work? Initial cleaning time potentiometer setting should be about 3 hours (mid-point)	C				
33	OPERATION	Does the permeate flow stabilize after about 15 minutes?					
34	OPERATION	Does the recirculation loop temperature stabilize at about 80 deg F?	C				
35	OPERATION	Does the system bleed every 10 minutes?	C				
36	OPERATION	Does the system feed tank overflow for 30 sec at the beginning.	C				
37	OPERATION	Does the system go into backflush at the end of a run?	C				
38	OPERATION	Is the concentrate dark and the permeate nearly clear, indicating membrane integrity?					
39	OPERATION	Is the pressure across the recirculation pump (2PI01-2PI02) 30 to 40 psi?	C				
40	OWS DISCHARGE PIPING	Does the discharge piping (OWS "clean" effluent) from the OWS connect to the polisher?	C				
41	OWS DISCHARGE PIPING	Is bypass piping installed to the OWHT?	C				
42	PERMEATE DISCHARGE PIPING	Does the permeate discharge valve, 2PV01, operate manually?	C				
43	PERMEATE DISCHARGE PIPING	Is the clean water (permeate) discharge connected to the overboard discharge piping?	C				
44	PERMEATE DISCHARGE PIPING	Is the discharge pressure during operation 5-25 psig when pumping overboard?	C				
45	PERMEATE DISCHARGE PIPING	Is the discharge pressure during operation 5-25 psig when recirculating?	C				
46	PLACARDS	Do the OWS operating instructions, the oily waste transfer system schematic drawing and the valve aligning chart reflect the installed Membrane Polishing system?					
47	PLACARDS	Is the operating instruction placard mounted as close as practical to the main control panel?					
48	PRESSURE GAUGES	Are pressure gauges installed, free from damage, operational, calibrated and marked with current stickers?					
49	RECIRCULATION LOOP ASSEMBLY	Are there any air or water leaks?					
50	RECIRCULATION LOOP ASSEMBLY	Do air bleed valves 2AV01 and 2AV02 pass air and seal water?					
51	RECIRCULATION LOOP ASSEMBLY	Do pressure transmitters 2PT01, 2,&3 indicate pressures on meters on interconnection panel?	C				
52	RECIRCULATION LOOP ASSEMBLY	Does the loop fill procedure, as described in tech manual and front placard, work?	C				
53	RECIRCULATION LOOP ASSEMBLY	Is recirc pump rotation in direction indicated by arrow on top of motor?	C				
54	REMOTE PANEL	Is the remote panel located in a continuously manned space and is it visible from the watch station?					
55	STRAINER-DUPLEX OR SIMPLEX	Does an audible alarm sound and a light illuminate when the differential pressure across the strainer reaches 15 psi?	C				

## ULTRAFILTRATION MEMBRANE CHECKLIST

	CATEGORY	INSPECTION ITEM	CRITICAL ("C" INDICATES CRITICAL ITEM)	YES	NO	N/A	COMMENTS
56	STRAINER-DUPLEX OR SIMPLEX	Is the differential pressure switch mounted near the strainer and at or near strainer level?					
57	WATER AND AIR SUPPLY PIPING	<b>**FOR INITIAL INSPECTION ONLY:</b> Is the air supply line connected per print?	C				
58	WATER AND AIR SUPPLY PIPING	Does water backflow preventer 3CV01 function and drain properly?	C				
59	WATER AND AIR SUPPLY PIPING	Is the air supply regulator, 2PR01, set to 100 psig?	C				
60	WATER AND AIR SUPPLY PIPING	Is the air supply regulator, 2PR02, set to 30 psig?	C				
61	WATER AND AIR SUPPLY PIPING	Is the water pressure relief valve 3VR01 calibrated to relieve at 40 to 42 psi?					
62	WATER AND AIR SUPPLY PIPING	Is the water supply regulator, 3PR01, set to 40 psig?	C				

**Appendix A:  
SHIPBOARD EQUIPMENT CONFIGURATION INFORMATION  
Oil Pollution Abatement Equipment**

Ship Name: \_\_\_\_\_ Hull Number: \_\_\_\_\_ Date: \_\_\_\_\_

**General Information: Please note type and number of all OPA equipment installed.**

**Current Certification Status:**

**Date of Last Inspection:**

**OWHT Numbers of Tanks :** \_\_\_\_\_ **WOT Numbers of Tanks. :** \_\_\_\_\_

**Total OWHT Capacity (gallons):** \_\_\_\_\_ **Total WOT Capacity (gallons):** \_\_\_\_\_

Ship Type	OWHT (gallons)	WOT (gallons per OWS unit)
CV	67,500	25,000
CVN	33,750	25,000
AGF, AOE, LCC, LHD, LPD, LPH	12,500	5,000
CG 47	5,000	5,000
AS, LSD, LHA	6,500	5,000
DD 963, DDG 51, FFG 7	2,500	3,000
MCM	500	600

Other relevant oil/oily waste tank information:

<u>Tank Name</u>	<u>Tank No.</u>	<u>Capacity</u>
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Recommended OWHT and WOT Tank Capacities

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**Pumps:**

List the type, model with model number and location of each OWTP installed.

**OWS model(s): Unit One** \_\_\_\_\_

**Unit Two** \_\_\_\_\_

OWS Location(s): **Unit One** \_\_\_\_\_

Remote Indicator \_\_\_\_\_

**Unit Two** \_\_\_\_\_

Remote Indicator \_\_\_\_\_

Waste oil totalizer reading (if applicable): \_\_\_\_\_

OWS plates last cleaned **Unit One**: \_\_\_\_\_

OWS plates last cleaned **Unit Two**: \_\_\_\_\_

OWS nominal flow rate (gpm):

Other: \_\_\_\_\_  
○3   ○ 10   ○50   ○ 100   Other: \_\_\_\_\_

For dual OWS installs, record configuration of switches and tanks. For example, Is one OWS (Duty) installed with a high level switch at approximately 50% tank capacity and a low level switch just above the OWS suction tailpiece, and the second OWS (Standby) installed with the high level switch at approximately 75% tank capacity and the low level switch just above the OWS suction line tailpiece?

**OCM model:** \_\_\_\_\_ **Display (LED/Digital):** \_\_\_\_\_ [applies to ET-35N OCM]

OCM Location(s): **Unit One** \_\_\_\_\_ **Remote Indicator** \_\_\_\_\_

**Unit Two** \_\_\_\_\_ **Remote Indicator** \_\_\_\_\_

OCM serial number *Unit One*: \_\_\_\_\_

OCM serial number *Unit Two*: \_\_\_\_\_

OCM model (secondary): \_\_\_\_\_ [only applies to DDG-51 Class ships]

OCM serial number (secondary): \_\_\_\_\_

**Calibration Status** [applies only to ET-35N OCMs]:

○ Calibrated, expiration date: \_\_\_\_\_      ○ Need calibration, expired on: \_\_\_\_\_

Elapsed time meter reading (hrs): \_\_\_\_\_

**Three-Way Diverter Valve:**

List the manufacturer, size and model/model number of diverter valve(s) installed.

**Spill Containment:**

List the AEL# for Navy Mark II Oil Spill Kits onboard.

**Appendix B:  
MIL-STD 777D, Type R-1, Valves and Piping**

Category and Group	Services	Maximum System Pressure (lb/in <sup>2</sup> )	Maximum System Temperature	Remarks
R-1	Waste water and oily waste drainage, oily waste transfer and weather deck drainage	50	150	See notes R-1-1 through R-1-4

Item	Type	Material	Applicable Documents	Remarks	
Pipe	Seamless or Welded	90-10 copper-nickel	MIL-T-16420		
	Seamless	Aluminum Alloy, 5086	WW-T-700/5		
		Carbon Steel, Galvanized	ASTM A 106, Grade B		
		Glass Reinforced Plastic	MIL-P-24608		See note R-1-5
Valves	Gate	Bronze	Drawing 803-2177917		
	Globe, angle and stop check		Drawing 803-1385714		
			Drawing 803-1385541		
	Swing check		Drawing 803-4384536		
	Ball, 1/4 in. - 2-1/2 in.		Drawing 803-1385637		
			Drawing 803-1385721		
Ball, 3 in. - 6 in.	Drawing 803-5001003				
Fittings	Flanged	Bronze	Drawing 810-1385915		
	Silver-brazing		MIL-F-1183		
	Deck Drain	Copper-Nickel	Drawing 803-1385789		
		Carbon Steel	Commercial		
	Butt Welding	90-10 copper-nickel	Drawing 803-1385880		
		Aluminum Alloy, 5086 or carbon steel	ANSI B16.09		
	Socket Bonded	Glass Reinforced Plastic	MIL-P-24608		See note R-1-5
	Socket Welding	Carbon Steel, ASTM A 105 or ASTM A 181, Class 70	ANSI B16.11		
Flanges	Silver-brazing	Bronze	MIL-P-20042		
	Socket Bonded	Glass Reinforced Plastic	MIL-P-24608		See note R-1-5
	Socket Welding	Carbon Steel, Galvanized ASTM A 105 or ASTM A 181, Class 70	ANSI B16.5		
Gaskets	Sheet	Synthetic Rubber	MIL-G-1149		
		Synthetic Rubber Cloth Inserted	HH-P-151		

Category and Group	Services	Maximum System Pressure (lb/in <sup>2</sup> )	Maximum System Temperature	Remarks
Flange Bolting	Bolts, Studs and Nuts	Silicon Bronze	MIL-S-1222, Grade 655, 661	

**NOTES:**

R-1-1 Aluminum pipe, fittings and drains are to be used in area of aluminum structures only.

R-1-2 Steel pipe, fittings and deck drains are to be used only in the weather deck drains above the main deck in the area of steel structure and outside ship envelope.

R-1-3 Copper-nickel pipe, bronze fittings and valves to be used in weather deck drains within ship envelope, oily waste, waste water, and oily waste transfer.

R-1-4 Glass reinforced plastic pipe or fittings may be used in oily waste transfer.

R-1-5 Adhesive in accordance with MIL-P-24608 shall be used for joining glass reinforced GRP pipe to GRP fittings and flanges.



**Appendix C:  
Suction Pipe Size and Horizontal Distance Table**

FLOW RATE	SUCTION PIPE SIZE	MAX. ALLOWABLE HORIZONTAL DISTANCE (FEET)			
		0 FT	5' BELOW	10' BELOW	5' ABOVE
GPM	IN				
10	1.5	671	469	267	873
15	1.5	367	255	142	479
50	2	120	80	39	161
100	2.5	67	41	14	93
200	3	50	28	5	73