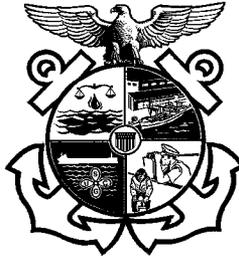


United States Coast Guard



FOREIGN TANK VESSEL EXAMINER Job Aid

Name of Vessel		Flag <input type="checkbox"/> No Change	
IMO Number		Case Number	
Date Completed	Priority	Points	
Location			
Vessel Built in Compliance with SOLAS: 60 74 74/78 NA			
Port State Control Officer & Examiners			
1. _____	_____	5. _____	_____
2. _____	_____	6. _____	_____
3. _____	_____	7. _____	_____
4. _____	_____	8. _____	_____

Use of Foreign Tank Vessel Examiner Job Aid:

This examination book is intended to be used as a job aid by Coast Guard port state control officers during boardings of foreign-flagged tank vessels. Each book contains an extensive list of possible examination items. It is not, however, the Coast Guard's intention to "inspect" all items listed. As a port state responsibility, port state control officers must verify that the vessels and their crews are in substantial compliance with international conventions and applicable US laws. The depth and scope of the examination must be determined by the port state control officers based on their observations.

This PQS workbook cites SOLAS regulations from the 2020 Consolidated Edition (74 SOLAS (20). In some cases, the regulations in 74 SOLAS (20) may not apply due to the keel laid date of the vessel. PSC personnel must pay close attention to the applicability dates of the SOLAS chapters and regulations when conducting PSC exams.

This document does not establish or change Federal laws or regulations. References given are only general guides. Refer to IMO publications, CFR's, the Port State Control Job Aid, Foreign Chemical Tanker Training Aid, NVIC's and any locally produced cite guides for specific regulatory references.

NOTE: *Guidance on how to examine foreign chemical tank vessels can be found in MSM Volume II, Section D, Chapter 6: Procedures Applicable to Foreign Tank Vessels.*

Guide to Examinations:

Pre-inspection Items

- Review MISLE records
- Obtain copies of forms to be issued

Post-inspection Items

- Issue letters/certificates to vessel
 - Form A
 - Form B
 - COC
- Complete MISLE entries within 48 hours

Table of Contents:

Section 1: Inspection Items..... 3

- Pre-Examination 3
- Certificates and Documents 3
- Logs and Manuals..... 4
- Bridge Equipment 5
- Lifesaving 6
- Firefighting Systems 6
- Electrical Systems..... 7
- Pollution 7
- Topside Equipment 7
- Cargo Systems 8
- Follow Up Actions 13

Section 2: Appendices

- Pump room entry 16
- Conversions 16

Section 1: Examination Items

Pre-Examination

- 1. Schedule examination in Maritime Information for Safety and Law Enforcement (MISLE)
 - Review special notes pertaining to alternative design arrangements MSM I/12.G.5
 - Verify applicable examination regulations CGTTP 3-72.12
 - Determine if cargo operations are permitted prior to COC exam MS-73/D.6.C.1.e(2)
 - Verify status of user fees 46 CFR 2.10-125
 - Prepare Certificate of Compliance 46 USC 3711
MS-73/D.6.C.1.e(2)
 - Request marine chemist certification of pump room MS-73/D.6.C.1

- 2. Conduct meeting with vessel's representative to discuss scope of the examination
 - Coordinate testing procedures MS-73/D.6.C.4
MS-73/D.6.C.6.f(1)(e)

Certificates and Documents

- 3. Examine International Oil Prevention Certificate Form B (IOPP)
 - Verify presence 33 CFR 151.19(b)
MARPOL I/7 & I/8
 - Verify validity MARPOL I/10
MARPOL I/6.1
 - Verify form/contents MARPOL I/9
MARPOL I/Appendix II

- 4. Examine Tank Vessel Response Plan (TVRP)
 - Verify presence 33 CFR 155.1015
33 CFR 155.1025
 - Verify validity 33 CFR 155.1065(c)
 - Verify contents 33 CFR 155.1030 & 1035
33 CFR 155.1045

- 5. Examine International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances (IPPC-NLS)
 - Verify presence 46 CFR 153.9(a)
MARPOL II/9.1
 - Verify validity MARPOL II/10
 - Verify contents MARPOL II/9.4
MARPOL II/Appendix III

- 6. Examine crew Certificates of Competency & Proficiency for service on oil tankers
 - Verify basic training for oil tanker cargo operations STCW A-V/1-1.1
 - Verify advanced training for oil tanker cargo operations STCW A-V/1-1.2

- 7. Verify participation in Enhanced Survey program
 - Verify written language(s) SOLAS 20 XI-1/2
ESP Code 6.1.1
 - Verify presence of supporting documents ESP Code 6.1.1 & .2
 - Verify survey schedule ESP Code 2, 3 & 4

Logs and Manuals

- 8. Examine Oil Record Book (Part II)
 - Verify presence 33 CFR 151.25
MARPOL I/36.1
 - Verify validity and contents MARPOL I/36.2-36.6
 - Verify presence of completed books MARPOL I/36.7
 - Verify form MARPOL I/36.1
MARPOL I/Appendix III

- 9. Examine cargo and ballast system instructional manual
 - Verify presence of instruction manual 33 CFR 157.23(a)
 - Verify format and content of instruction manual 33 CFR 157.23(b)

- 10. Examine inert gas manual(s)
 - Verify presence & approval SOLAS 20 II-2/4.5.5.1.1
FSS Code 15.2.2.5
 - Verify contents SOLAS 20 II-2/4.5.5.1.1
FSS Code 15.2.2.5
MS-72/C.5.C.11

- 11. Examine Procedures & Arrangements (P&A) Manual
 - Verify presence 46 CFR 153.490(a)(2)
MARPOL II/14.1
MS-74/E.1.E.3.b
 - Verify validity MARPOL II/14.1
MS-74/E.1.E.2.e.2
 - Verify contents 46 CFR 153.490(b)
MARPOL II/14.2
MARPOL II/Appendix IV

- 12. Examine Shipboard Oil Pollution Emergency Plan (SOPEP)
 - Verify presence MARPOL I/37.1 & .3
 - Verify validity MARPOL I/37.1
 - Verify contents MARPOL I/37.2

- 13. Examine Cargo Record Book
 - Verify presence 46 CFR 153.490(a)(1)
MARPOL II/15.1 & .5
 - Verify validity and contents 46 CFR 153.909
MARPOL II/15.2, .3 & .4
 - Verify presence of completed books 46 CFR 153.909(e)
MARPOL II/15.5
 - Verify form 46 CFR 153.490(a)(1)
MARPOL II/Appendix II

Bridge/Navigation

- 14. Examine additional equipment for tank vessels
 - Verify additional radar capabilities 33 CFR 164.37(b)
 - Verify Automatic Radar Plotting Aid (ARPA) 33 CFR 164.38(b)(2)
 - Witness steering gear tests 33 CFR 164.39
SOLAS 20 II-1/29 & 30

Lifesaving Equipment

- 15. Examine lifeboats
 - Verify equipped with a fire protection system SOLAS 20 III/31.1.7
LSA Code 4.9
 - Examine material condition of fire protection system piping* LSA Code Part 1/6.16.8
 - Verify self-contained air support system LSA Code 4.8 & .9

Firefighting Systems

- 16. Examine fixed fire-extinguishing system(s) for cargo pump rooms
 - Verify type of agent and coverage SOLAS 20 II-2/10.9.1
 - Verify CO2 system compliance SOLAS 20 II-2/10.9.1.1
FSS Code 5.2.2
 - Verify foam system compliance SOLAS 20 II-2/10.9.1.2
FSS Code 6
 - Verify water spraying system compliance SOLAS 20 II-2/10.9.1.3
FSS Code 7
- 17. Examine fixed deck foam system
 - Verify presence SOLAS 20 II-2/10.8
FSS Code 14.2.1.1
 - Verify operation of fire main isolation valves FSS Code 14.2.3.4
 - Witness operational test of applicators and monitors FSS Code 14.2.2.2
FSS Code 14.2.3.2.2
 - Verify location of main operation station FFS Code 14.2.3.1.1
 - Verify foam type (polar/non-polar) is compatible with cargoes MS-73/D.6.B.3
 - Verify foam analysis report FSS Code 14.2.2.1.4
IMO MSC.1/Circ. 1312
- 18. Examine additional personal fire fighting equipment
 - Verify additional fire fighting outfits SOLAS 20 II-2/10.10.2.3
FSS Code 3.2.1
 - Verify additional spare charges for breathing apparatus SOLAS 20 II-2/10.10.2.5

Electrical Systems

- 19. Examine components installed in designated hazardous locations
 - Identify hazardous location(s) SOLAS 20 II-1/45.11
IEC 60092-502
 - Verify design and conditions of fixtures are appropriate SOLAS 20 II-1/45.5.4
SOLAS 20 II-1/45.11

Pollution Prevention

- 20. Examine containment on deck
 - Verify adequate containment 33 CFR 155.310(a)
33 CFR 156.120(n)
 - Verify adequate peripheral cargo deck coamings 33 CFR 155.310(c)(4)
33 CFR 156.120(n)
 - Verify means of drainage 33 CFR 155.310(a)(2)
33 CFR 156.120(o)
 - Verify mechanical means of closing drain(s) or scupper(s) 33 CFR 155.310(a)(3)
33 CFR 156.120(o)

Topside Equipment

- 21. Examine access to bow and emergency towing arrangements
 - Verify safe access SOLAS 20 II-1/3-3
ICLL 25(4) & 26(2)
IMO Res MSC.62(67) Rev 1
 - Verify emergency towing arrangement SOLAS 20 II-1/3 4.1
33 CFR 155.235 & NVIC 08-89
IMO Res MSC.62(67) Rev 1
 - Verify towing procedures SOLAS 20 II-1/3 4.2
 - Verify design is approved by the Administration SOLAS 20 II-1/3-4.1.2.2 & 3-4.1.3
33 CFR 155.235

Cargo Systems

22. Examine cargo tank venting arrangements
- Verify material condition SOLAS 20 II-2/4.5.3
 - Verify condition of flame screens and arresters SOLAS 20 4 II-2/4.5.3.3
MS-73/D.6.B.4
MS-75/F.3.F.17
 - Witness operation of permanently attached closures ICLL I/20
 - Verify height of tank venting system SOLAS 20 II-2/4.5.3.4
SOLAS 20 II-2/11.6.2.1
 - Verify horizontal distance from air intakes and openings SOLAS 20 II-2/4.5.3.4.1
SOLAS 20 II-2/11.6.2.2
 - Witness operation of visual indicators SOLAS 20 II-2/4.5.3.2.2
SOLAS 20 II-2/11.6.3.3
 - Verify presence of blank flanges SOLAS 20 II-2/4.5.3.5
 - Verify operation of pressure/vacuum valves SOLAS 20 II-2/11.6.1
SOLAS 20 II-2/11.6.3.2
 - Verify operation of vapor line pressure sensors and alarms SOLAS 20 II-2/11.6.3.2
23. Examine cargo pump room
- Review Marine Chemist Certificate prior to entry MSM I/10 App. A
 - Verify operation of ventilation SOLAS 20 II-2/4.5.4.1
 - Witness operation of lighting/ventilation interlock SOLAS 20 II-2/4.5.10.1.2
 - Verify operation of hydrocarbon gas monitoring system SOLAS 20 II-2/4.5.10.1.3
SOLAS 20 II-2/1.6.7
IMO MSC.1/Circ.1370
 - Witness operation of bilge monitoring devices SOLAS 20 II-2/4.5.10.1.4
 - Verify electrical equipment SOLAS 20 II-1/45.11
 - Verify fixed fire extinguishing system SOLAS 20 II-2/10.9.1 & .2
 - Examine spool piece MARPOL I/1.18 UI 3.1
 - Verify bulkhead between pump room and engine room is gas tight SOLAS 20 II-2/9.2.4 Table 9.7
 - Verify presence of B-II extinguisher in lower pump room 46 CFR 34.50-10(a)

- 24. Examine designated observation area
 - Verify location 33 CFR 157.13(a)
 - Verify means to stop discharge of effluent 33 CFR 157.13(b)(1)
 - Verify communications 33 CFR 157.13(b)(2)

- 25. Examine liquid cargo transfer systems
 - Examine condition of piping and hose(s) 33 CFR 155.800
 - Verify operation of cargo pump remote shutdown devices 33 CFR 155.780
33 CFR 156.170(c)(5)
 - Verify hoses are marked 33 CFR 155.800
33 CFR 154.500(e) & (f)
 - Verify condition of hose and hose assembly components 33 CFR 155.800
33 CFR 154.500 (a)-(d)
 - Verify transfer equipment tests and inspections 33 CFR 156.170(c)(1)
 - Verify warning signals and signs 46 CFR 35.30-1

- 26. Examine Vapor Control System (VCS)
 - Examine drain lines 46 CFR 39.2001(d)
 - Verify electrically bonded 46 CFR 39.2001(c)
 - Verify system can be isolated from Inert Gas System 46 CFR 39.2001(e)
 - Verify presence of isolation valve and indicator 46 CFR 39.2001(g)
 - Verify markings on vapor piping 46 CFR 39.2001(h)
 - Verify presence of flange stud 46 CFR 39.2001(j)
 - Verify closed gauging system 46 CFR 39.2003(a)
 - Verify pressure indicator for main vapor collection line 46 CFR 39.2013(a)
 - Witness operation of pressure alarms 46 CFR 39.2013(b)
 - Examine approval letter 46 CFR 39.1015
MS-73/D.6.B.2

- 27. Examine tank liquid high level and overflow protection
 - Verify overflow alarms 46 CFR 39.2007(a)
SOLAS 20 II-2/11.6.3.1
 - Verify high level alarm settings 46 CFR 39.2007(c)(1)
 - Witness operational test of audible and visual alarm indicators 46 CFR 39.2007(c)(3) & (d) (3)
 - Verify high level alarm markings 46 CFR 39.2007(c)(2)
 - Verify tank overflow alarm markings 46 CFR 39.2007(d)(2)

- 28. Examine fixed/portable vapor detection instruments
 - Witness operation of flammable vapor device SOLAS 20 II-2/4.5.7.1 & .2.1
 - Witness operation of oxygen content device SOLAS 20 II-2/4.5.7.1 & .2.1
FSS Code 16.2.2.3.2
 - Verify means to calibrate fixed and portable instruments SOLAS 20 II-2/4.5.7.1
FSS Code 16.2.2.3.4
 - Witness operation of fixed gas sampling line system SOLAS 20 II-2/4.5.7.2.2 & .3
FSS Code 16.2.2.3.4

- 29. Examine Inert Gas System (IGS)
- Verify presence SOLAS 20 II-2/4.5.5.1.1 & .2
SOLAS 20 II-2/4.5.5.2
 - Determine type installed SOLAS 20 II-2/4.5.5.3.2
FSS Code 15.2.2.1.4
46 CFR 32.53-10
 - Verify volume of inert gas being delivered SOLAS 20 II-2/4.5.5.3.2
FSS Code 15.2.2.1.2.4
 - Verify oxygen content of inert gas in IGS supply main SOLAS 20 II-2/4.5.5.3.2
FSS Code 15.2.2.1.2.5
FSS Code 15.2.2.4.2.2
 - Verify oxygen content of inert gas forward of non-return devices FSS Code 15.2.2.1.2.1
 - Verify arrangements within gas-safe zone (i.e. scrubbers, blowers) FSS Code 15.2.3.1.3 & .4
 - Verify arrangement of pressure/vacuum breaking device SOLAS 20 II-2/11.6.3.4
 - Verify arrangement of water seal on deck FSS Code 15.2.2.3.1.2, .7 & .9
 - Verify arrangement of non-return valve on deck FSS Code 15.2.2.3.1.3
 - Verify ability to connect inert gas main to an external supply of inert gas FSS Code 15.2.2.3.2.6
 - Verify double block and bleed arrangement MS-72/C.5.C.6.b(4)

30. Witness tests of Inert Gas System (IGS) audible and visual alarms and shutdowns
- Witness test for low water pressure or low water flow to the cooling & scrubbing arrangement FSS Code 15.2.3.2.2.3
FSS Code 15.2.2.2.2
 - Witness test of high water level in flue gas scrubber alarm FSS Code 15.2.3.2.2.4
FSS Code 15.2.2.2.2
 - Witness high temperature alarm shutdown* FSS Code 15.2.3.2.2.5
FSS Code 15.2.2.2.2 & .2.3.2.1
MS-72/C.5.F.3(4)
 - Witness IGS blower failure alarm and automatic shutdown of main or regulating valve* FSS Code 15.2.3.2.2.6
FSS Code 15.2.2.2.2
MS-72/C.5.F.3(6)
 - Witness test of high oxygen content alarm in IGS main FSS Code 15.2.2.4.5.1.1
FSS Code 15.2.2.4.5.2
MS-72/C.5.F.3(1)
 - Witness test for failure of power to auto controlled system for gas regulating valve and indicating devices alarms FSS Code 15.2.2.4.5.1.2
FSS Code 15.2.2.4.5.1.5
MS-72/C.5.F.3(7)
 - Witness test for low water alarm for water seal 46 CFR 32.53-10(b)(1)
FSS Code 15.2.3.2.2.7
MS-72/C.5.F.3(3)
 - Witness test for low gas pressure in IG main forward of all non-return devices alarm FSS Code 15.2.2.4.5.1.3
FSS Code 15.2.2.4.5.2
MS-72/C.5.F.3(2)
 - Witness test for high gas pressure in IG main forward of all non-return devices alarm(s) FSS Code 15.2.2.4.5.1.4
FSS Code 15.2.2.4.2
MS-72/C.5.F.3(5)
 - Verify fuel oil supply alarm FSS Code 15.2.3.2.2.1
FSS Code 15.2.2.2.2
 - Verify Nitrogen Generator alarms FSS Code 15.2.4.2.2
31. Examine oil discharge monitoring and control system (ODME)
- Verify approval 33 CFR 157.12(a) & 157.12(b)
MARPOL I/31.1
MS-74/E.1.D.5
 - Verify operation of recording device 33 CFR 157.12d(a)(4)(viii)(C)
MARPOL I/31.2
 - Verify approved operation manual 33 CFR 157.12g(c)
MARPOL I/31.4
 - Verify recording device records 33 CFR 157.12d(h)

- 32. Examine crude oil washing (COW) system
 - Verify presence MARPOL I/33.1 & .33.3
 - Verify approved MARPOL I/33.2
 - Verify presence of Operations and Equipment Manual MARPOL I/35.1

- 33. Verify International Safety Management (ISM) compliance
 - Verify clear grounds exist to initiate expanded exam Procedures, App 8 MS-73/D.1.G.2
PSCE TTP, Ch. 13
 - Verify crew familiarity with vessel's Safety Management System (SMS) ISM Code 6
 - Verify company responsibilities and authority are clearly defined ISM Code 3
 - Verify record keeping compliance ISM Code 11
 - Verify maintenance requirements ISM Code 10
 - Verify SMS training requirement ISM Code 6.5
 - Review audit documentation and follow-up actions ISM Code 1.4.6, 9
PSCE TTP, Ch.13

Follow Up

- 34. Issue or endorse vessel's Certificate of Compliance
 - Issue and/or endorse Certificate of Compliance 46 USC 3711
46 CFR 2.01-6(a)(4)
CG-3585
 - Verify COC endorsements are accurate CG-3585
 - Obtain copy of endorsed certificates MSM I/12.E.7
MS-73/D.6.G.1.h

Section 2: Appendices

The following steps shall be completed prior to, during, and after entering a pump room.

Steps to Take Prior To Pump Room Entry

- Determine the current and last three cargos carried to assess exposure risk.
- Review the Marine Chemist Certificate to verify the space was properly tested for the following:
 - Oxygen content - 19.5% to 22% (ideal is 20.8%)
 - Flammable gases/ vapors - less than 10% of LEL
 - Carbon Monoxide - less than 25 ppm
 - Hydrogen Sulfide - less than 1 ppm
 - Any toxic gases/ vapors dependent upon the nature of the space and its contents or previous contents – concentrations must be below the PEL and TLV limits.
 - Verify the Marine Chemist designated the space “Safe for Workers”
 - Verify that Marine Chemist signed the certificate.
 - Verify the certificate was issued within the past 24 hrs and that conditions have NOT changed. – (i.e. vessel moved, cargo pumps turned on or off, extreme outside temp change, etc.)
- BENZENE**: When high & moderate benzene level cargos are carried on board the vessel, the marine chemist certificate must contain the level in ppm of benzene present, if any. (See MSM Vol. I, Chap. 10, appendix C for list of cargos containing benzene)
 - If concentration level is above 5 ppm – entry is **NOT** authorized.
 - If concentration level is greater than 0.5 ppm, it is strongly recommended that the space be ventilated to bring the level below the TLV. If that cannot be accomplished and the benzene concentration is between 0.5 ppm and 5 ppm, PSCOs **MUST** wear an appropriate respirator and not stay in space longer than 2 hours.
 - If concentration level is less than 0.5 ppm, NO respirator required.
 - If vessel is carrying a low benzene level cargo and being transferred through the pump room - PSCOs must wear a respirator with organic vapor cartridge and cannot stay in space more than 2 hrs in the absence of a test for benzene.

- Calibrate and test the multi-gas detector required for entry. The meter should be able to detect oxygen and flammability. For sour crude cargos - for hydrogen sulfide as well.
- Check operation of personal oxygen monitor if carried in addition to the multi-gas meter. (An O₂ meter is required for entry into all confined space types)
- Check condition of the required EEBA. The carriage of an EEBA by all personal entering a pump room is required.
- Verify operation of ventilation system & that space is properly ventilated. Ventilation must be in operation at least 15 min prior to entry, or at least 3 air changes. A good "rule of thumb" indication that the system is operating properly is a noticeable air movement entering through the door to the upper pump room. **IF VENTILATION SYSTEM IS INOPERABLE, CG PERSONNEL ARE NOT AUTHORIZED TO ENTER THE PUMP ROOM.**
- Discuss the aspects of entering the pump room with the vessel's officer. Verify the presence of a litter and hoisting arrangement prior to entry.
- Verify all cargo transfer equipment in the pump room is secured.

Steps to Take During Pump Room Entry

- USCG personnel should be accompanied by a ship's officer or vessel rep.
- Carry the combination oxygen/flammability/toxic meter and EEBA.
- Carry a whistle or other device to sound an alarm in event of emergency.
- Check the air movement at the entry into the pump room. It should be very noticeable. **Note direction of flow!**
- Check the hoisting arrangement in the pump room. Most vessels have a block and tackle arrangement secured to an overhead beam in the area with direct access to the lowest part of the pump room.

- Verify the status of the ventilation system ducting at each level of the pump room. Terminate entry if the vent ducting is not intact.

Conversions:

Distance and Energy				
Kilowatts (kW)	X	1.341	=	Horsepower (hp)
Feet (ft)	X	3.281	=	Meters (m)
Long Ton (LT)	X	.98421	=	Metric Ton (t)
Liquid (<i>NOTE: Values are approximate.</i>)				
Liquid	bbbl/LT	m ³ /t	bbbl/m ³	bbbl/t
Freshwater	6.40	1.00	6.29	6.29
Saltwater	6.24	.975	6.13	5.98
Heavy Oil	6.77	1.06	6.66	7.06
DFM	6.60	1.19	7.48	8.91
Lube Oil	7.66	1.20	7.54	9.05
Weight				
1 Long Ton	=	2240 lbs	1 Metric Ton	= 2204 lbs
1 Short Ton	=	2000 lbs	1 Cubic Foot	= 7.48 gal
1 Barrel (oil)	=	5.61 ft = 42 gal = 6.29 m ³	1 psi	= .06895 Bar = 2.3106 ft of water
Temperature: Fahrenheit = Celsius ($^{\circ}\text{F} = 9/5\ ^{\circ}\text{C} + 32$ and $^{\circ}\text{C} = 5/9 (^{\circ}\text{F} - 32)$)				
0	=	-17.8	80	= 26.7
32	=	0	90	= 32.2
40	=	4.4	100	= 37.8
50	=	10.0	110	= 43.3
60	=	15.6	120	= 48.9
70	=	21.1	150	= 65.6
200	=	93.3	250	= 121.1
300	=	148.9	400	= 204.4
500	=	260	1000	= 537.8
Pressure: Bars = Pounds per square inch				
1 Bar	=	14.5 psi	5 Bars	= 72.5 psi
2 bars	=	29.0 psi	6 Bars	= 87.0 psi
3 Bars	=	43.5 psi	7 Bars	= 101.5 psi
4 Bars	=	58.0 psi	8 Bars	= 116.0 psi
9 Bars	=	130.5 psi	10 Bars	= 145.0 psi