Pollution Prevention

☐ 19. 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

☐ 20. Examine access to bow and emergency towing arrangements

• Verify safe access	SOLAS 20 II-1/3-3.2 ICLL 25(4) & 26(2) IMO Res MSC.62(67) Rev 1
• Verify emergency towing arrangements	SOLAS 20 II-1/3-4.1 33 CFR 155.235
• Verify emergency towing procedures	SOLAS 20 II-1/3-4.2 33 CFR 155.235
• Verify design is approved by Administration	SOLAS 20 II-1/3-4.1.2 & 4.1.3 33 CFR 155.235

Cargo Systems

☐ 21. Examine cargo tank venting arrangements

• Verify materiel condition	SOLAS 20 II-2/4.5.3 IBC Code 8.2
• Verify condition of flame screens and arresters	SOLAS 20 II-2/4.5.3.3 IBC Code 8.3.6 - 8.3.7 MS-73/D.6.B.4 & MS-75/F.3.F.17
• Verify operation of permanently attached closures (when applicable)	ICLL 20 IBC Code 8.3.1, .2 & .8
• Verify height of tank venting system	46 CFR 153.350 - 153.353 SOLAS 20 II-2/4.5.3.4 & 11.6.2.1 IBC Code 8.3.4.1 & 8.3.5
• Verify horizontal distance from air intakes and openings	46 CFR 153.350 - 150.351 SOLAS 20 II-2/4.5.3.4.1 & 11.6.2.2 IBC Code 8.3.4.2
• Verify operation of visual indicators (when applicable)	SOLAS 20 II-2/4.5.3.2.2 SOLAS 20 II-2/11.6.3.3
• Verify presence of blank flanges (when applicable)	SOLAS 20 II-2/4.5.3.5
• Verify operation of pressure/vacuum valves	SOLAS 20 II-2/11.6.1
• Verify operation of vapor line pressure sensors and alarms	SOLAS 20 II-2/11.6.3.2

☐ 22. Examine cargo pump room

• Verify operation of ventilation	SOLAS 20 II-2/4.5.4.1 IBC Code 12.1 & .2
• Verify 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
• Verify operation of bilge monitoring devices	SOLAS 20 II-2/4.5.10.1.4
• Verify electrical equipment	46 CFR 153.466 SOLAS 20 II-1/45.11 IBC Code 10.1.5, 11.3.15 & 12.1.8
• Verify fixed fire extinguishing system	SOLAS 20 II-2/10.9.1 & .2 IBC Code 11.2 & 12

☐ 23. Examine designated observation area (when applicable)

• Verify location	33 CFR 157.13(a)
• Verify means to stop discharge of effluent	33 CFR 157.13(b)(2)
• Verify communications	33 CFR 157.13)b)(2)

☐ 24. 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 156.170(c)(5) IBC Code 5.6.1.3
• Verify pumps, valves and pipelines are marked	33 CFR 155.800 IBC Code 3.6
• Verify transfer equipment tests and inspections	33 CFR 156.170(c) IBC Code 5.4 & 5.7

☐ 25. Examine Vapor Control System (VCS)

• Examine drain lines	46 CFR 39.2001(d)
• Verify electrically bonded	46 CFR39.2001(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 (when applicable)	46 CFR 39.2003(a)
• Examine approval letter (when applicable)	46 CFR 39.1015 MS-73/D.6.B.2

☐ 26. Examine high/low vapor pressure protection

• Verify pressure indicator for main vapor collection line	46 CFR 39.20-13(a) 46 CFR 153.372
• Verify operation of pressure alarms	46 CFR 39.20-13(b) 46 CFR 153.438

☐ 27. Examine tank liquid high level and overfill protection

• Verify overfill alarms	46 CFR 39.20-7(a), 153.408(a) & 153.409 SOLAS 20 II-2/11.6.3.1 IBC Code 15.19
• Verify high level alarm settings	46 CFR 39.20-7(c)(1) 46 CFR 153.409(a)
• Witness operational test of audible and visual alarm indicators	46 CFR 39.20-7(c)(3) & (d)(2) 46 CFR 153.408(e) 46 CFR 153.409(b)
• Verify high level alarm markings	46 CFR 39.20-7(c)(2) 46 CFR 153.409(d)
• Verify tank overfill alarm markings	46 CFR 39.20-7(d)(3) 46 CFR 153.408(d)

☐ 28. Examine fixed/portable vapor detection instruments

• Verify operation of flammable vapor detection device	SOLAS 20 II-2/4.5.7.1 IBC Code 13.2
• Verify operation of toxic vapor detection device	IBC Code 13.2
• Verify operation of oxygen content device	SOLAS 20 II-2/4.5.7.2.1 FSS Code 16.2.2.3.2
• Verify operation of fixed gas sampling line systems	SOLAS 20 II-2/4.5.7.2.2 & .3 IBC Code 13.2.2 FSS Code 16.2.2.3.4

☐ 29. Examine Inert Gas System (IGS)

• Verify presence	46 CFR 153.500 & 32.53-10 SOLAS 20 II-2/4.5.5.1
	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
	NVIC 02-88
• Verify volume of IG being delivered	SOLAS 20 II-2/4.5.5.3.1 FSS Code 15.2.2.1.2.4
• Verify oxygen content of inert gas in IG supply main	SOLAS 20 II-2/4.5.5.3.1 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 arrangement within gas-safe zone	FSS Code 15.2.3.1.3 & .4 IMO Res A.567(14)
• Verify arrangement of pressure/vacuum breaking device	SOLAS 20 II-2/11.6.3.4
• Verify arrangement of water seal on deck	46 CFR 32.53-10(b)(1) FSS Code 15.2.2.3.1.2 & .7
• Verify arrangement of non-return valve on deck	FSS Code 15.2.2.3.1.3

☐ 30. Examine operational tests of Inert Gas System (IGS) audible and visual alarms and shutdowns

• Witness operational test for low water pressure or low water flow to flue gas scrubber alarm	FSS Code 15.2.3.2.2.3 FSS Code 15.2.2.2.2 MS-72/C.5.F.3
• Witness operational 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 MS-72/C.5.F.3
• Witness operational high temperature alarm shutdown*	FSS Code 15.2.3.2.2.5 FSS Code 15.2.2.2.2 FSS Code 15.2.3.2.1
• Witness operational test of shutdown for failure of IG blowers*	FSS Code 15.2.3.2.2.6 FSS Code 15.2.2.2.2 MS-72/C.5.F.3
• Witness operational test of high oxygen content alarm in IGS main	FSS Code 15.2.2.4.5.1.1 &.5.2 MS-72/C.5.F.3
• Witness operational 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 & .5 MS-72/C.5.F.3
• Witness operational test for low water alarm for water seal	46 CFR 32.53-5 FSS Code 15.2.3.2.2.7 MS-72/C.5.F.3
• Witness operational test for low gas pressure in IG main forward of all non-return devices alarm	FSS Code 15.2.2.4.5.1.3 & 5.2 MS-72/C.5.F.3
• Witness operational 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
• Verify inert gas generator system alarms	FSS Code 15.2.3.2 FSS Code 15.2.4.2.2 MS-72/C.5.F.3

☐ 31. Examine oil discharge monitoring and control system (ODME)

• Verify approval	33 CFR 157.12(a) & (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 157.12c(g) MARPOL I/31.4

☐ 32. Examine cargo temperature control systems

• Verify means for measuring temperature	46 CFR 153.440 IBC Code 7.1.5
• Verify presence of temperature alarm	46 CFR 153.438 IBC Code 7.1.5.4 IBC Code 15.20 & 15.21
• Verify heating coils are blanked (when applicable)	IBC Code 16.6.2

☐ 33. Examine cargo sample stowage

• Verify stowed in designated space	IBC Code 16.5.1
• Verify arrangement of stowage space	IBC Code 16.5.2
• Verify arrangement of stowed samples	IBC Code 16.5.3 & .4

Follow Up

☐ 34. 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

☐ 35. 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

Sector 2: Appendices

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 *(**NOTE:** Values are approximate.)*

Liquid	bbl/LT	m^3/t	bbl/m^3	bbl/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 (°F = 9/5 °C + 32 and °C = 5/9 (°F – 32))

0	=	-17.8	80	=	26.7	200	=	93.3
32	=	0	90	=	32.2	250	=	121.1
40	=	4.4	100	=	37.8	300	=	148.9
50	=	10.0	110	=	43.3	400	=	204.4
60	=	15.6	120	=	48.9	500	=	260
70	=	21.1	150	=	65.6	1000	=	537.8

Pressure: Bars = Pounds per square inch

1 Bar	=	14.5 psi	5 Bars	=	72.5 psi	9 Bars	=	130.5 psi
2 bars	=	29.0 psi	6 Bars	=	87.0 psi	10 Bars	=	145.0 psi
3 Bars	=	43.5 psi	7 Bars	=	101.5 psi			
4 Bars	=	58.0 psi	8 Bars	=	116.0 psi			