

# **Barge Inspector Performance and Qualification Standard**

## **Liquefied Gas Addendum (BIG)**

This Performance and Qualification Standard (PQS) workbook is an addendum to the Barge Inspector (BI) PQS. It is your responsibility to document all completed unit training items and keep track of all inspections completed during this process by filling out the Inspection Log located in appendix B of the BI PQS workbook.

This PQS workbook contains the necessary tasks and steps to conduct an inspection on a liquefied gas barge. Those members who will be conducting inspections on liquefied gas barges are required to complete all tasks and steps in this PQS workbook.

The BIG PQS addendum may be completed concurrently with the BI PQS or subsequent to receiving a BI qualification. In either case a Certification Board must be satisfactorily completed prior to receiving the "Liquefied Gas" notation on the BI Letter of Certification/Designation.

**Task:** BIG-PI01 Research vessel details in MISLE (Marine Information for Safety and Law Enforcement) database

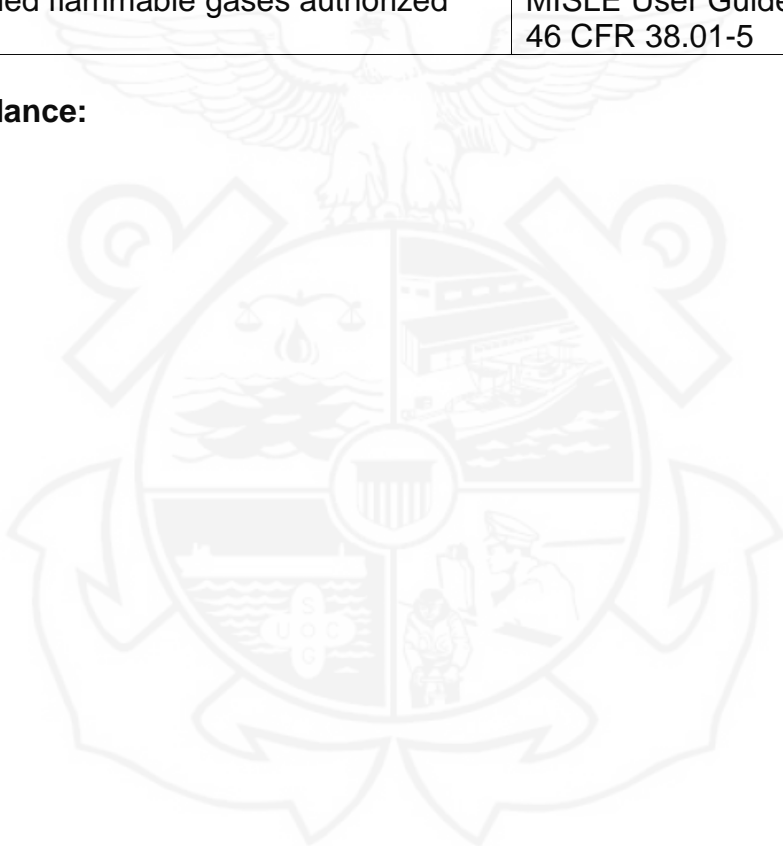
**Condition:** *During preparation for inspection*

**Standard:** *In accordance with current policies, procedures and processes*

**References:** 1. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases  
2. MISLE Vessels User Guide

Steps		References	Initials
PI01.1	Verify liquefied flammable gases authorized	MISLE User Guide 46 CFR 38.01-5	

**Verifying Officer Guidance:**



<b>Inspector's Name:</b> (Last, First, Initial)	<b>EMPLID:</b>
<b>Verifying Officer's Signature:</b>	<b>Date:</b>

**Task:** BIG-CD01 Review Certificate of Inspection (COI)**Condition:** *While validating certificates and documents***Standard:** *In compliance with applicable policies, laws, regulations and standards*

- References:**
1. Title 46, Code of Federal Regulations Part 31 Tank Vessels - Inspection & Certification
  2. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases

Steps		References	Initials
CD01.1	Verify hull exams date	46 CFR 31.10-21	
CD01.2	Verify Internal Structural Exam (ISE) date	46 CFR 31.10-21	
CD01.3	Verify Cargo Tank(s) Internal/External Exam dates	46 CFR 38.25-1(a)(1) & (2)	
CD01.4	Verify approved cargoes	46 CFR 38.01-5	
CD01.5	Verify hull type number(s)	46 CFR 38.05-1(f)	

**Verifying Officer Guidance:****Inspector's Name:** (Last, First, Initial)**EMPLID:****Verifying Officer's Signature:****Date:**

**Task:** BIG-CS01 Inspect cargo tanks

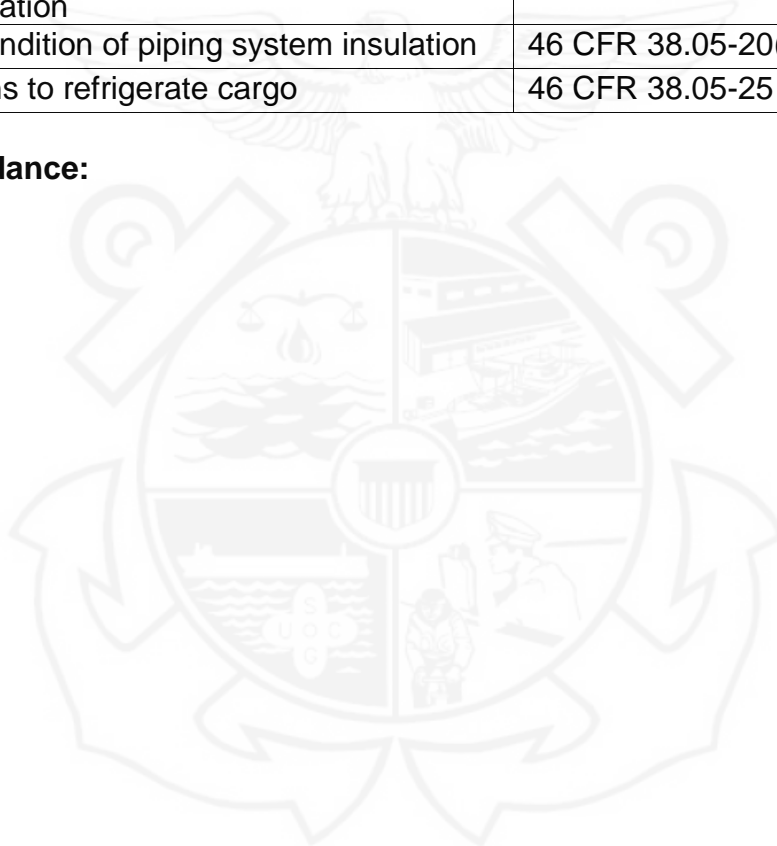
**Condition:** *During cargo systems inspection*

**Standard:** *In compliance with applicable policies, laws, regulations and standards*

**References:** 1. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases

Steps		References	Initials
CS01.1	Verify markings	46 CFR 38.05-5	
CS01.2	Verify service life of cargo tank & secondary barrier insulation	46 CFR 38.05-20(a) - (d)	
CS01.3	Examine condition of piping system insulation	46 CFR 38.05-20(e)	
CS01.4	Verify means to refrigerate cargo	46 CFR 38.05-25	

**Verifying Officer Guidance:**



<b>Inspector's Name:</b> (Last, First, Initial)	<b>EMPLID:</b>
<b>Verifying Officer's Signature:</b>	<b>Date:</b>

**Task:** BIG-CS02 Inspect piping, valves, fittings and accessories**Condition:** *During cargo systems inspection***Standard:** *In compliance with applicable policies, laws, regulations and standards***References:** 1. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases

Steps		References	Initials
CS02.1	Verify types and pressure ratings	46 CFR 38.10-1(a) & (b)	
CS02.2	Examine condition of connections	46 CFR 38.10-1(c)	
CS02.3	Verify condition of valve seats, flanges and manhole gaskets	46 CFR 38.10-1(d)	
CS02.4	Verify approval and types of expansion joints	46 CFR 38.10-1(e)	
CS02.5	Examine condition of low temperature piping	46 CFR 38.10-1(f)	
CS02.6	Examine condition of cargo tanks connections	46 CFR 38.10-1(g) & (i) 46 CFR 38.10-5	
CS02.7	Verify approval and piping connections below weather deck or liquid level	46 CFR 38.10-1(h)	
CS02.8	Verify condition and testing of cargo hose(s) and fittings	46 CFR 38.15-5	
CS02.8	Verify grounding of cargo tanks and barrier spaces	46 CFR 38.15-15(c)	

**Verifying Officer Guidance:****Inspector's Name:** (Last, First, Initial)**EMPLID:****Verifying Officer's Signature:****Date:**

**Task:** BIG-CS03 Inspect quick-closing valves

**Condition:** *During cargo environmental control inspection*

**Standard:** *In compliance with applicable policies, laws, regulations and standards*

**References:** 1. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases

Steps		References	Initials
CS03.1	Verify operation of remote shutdown	46 CFR 38.15-20	
CS03.2	Verify fail safe closure type	46 CFR 38.10-1(j)	
CS03.3	Verify location of remote shutoff valves	46 CFR 38.10-1(j)	
CS03.4	Verify melting points of fusible links	46 CFR 38.10-1(j)	
CS03.5	Verify location and operation of manual valve	46 CFR 38.10-1(j)	

**Verifying Officer Guidance:**



<b>Inspector's Name:</b> (Last, First, Initial)	<b>EMPLID:</b>
<b>Verifying Officer's Signature:</b>	<b>Date:</b>

**Task:** BIG-CS04 Inspect additional fittings on non-pressure type tanks

**Condition:** *During cargo systems inspection*

**Standard:** *In compliance with applicable policies, laws, regulations and standards*

**References:** 1. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases

Steps		References	Initials
CS04.1	Verify operation of liquid level gaging device	46 CFR 38.10-1(q)(1)	
CS04.2	Verify operation of high level alarm	46 CFR 38.10-1(q)(2)	
CS04.3	Verify location and operation of temperature sensors	46 CFR 38.10-1(q)(3)	
CS04.4	Verify location and operation of pressure and vacuum gages	46 CFR 38.10-1(q)(4)	

**Verifying Officer Guidance:**



<b>Inspector's Name:</b> (Last, First, Initial)	<b>EMPLID:</b>
<b>Verifying Officer's Signature:</b>	<b>Date:</b>

**Task:** BIG-CS05 Inspect safety relief valves**Condition:** *During inspection***Standard:** *In compliance with applicable policies, laws, regulations and standards***References:** 1. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases  
2. Title 46, Code of Federal Regulations Part 54 Pressure Vessels

Steps		References	Initials
CS05.3	Verify approvals	46 CFR 38.15-10(a)	
CS05.3	Verify relieving capacity and location	46 CFR 38.15-10(b)	
CS05.3	Verify arrangements inspection requirements and witness test(s)	46 CFR 38.10-15(d) 46 CFR 38.25-10(a) & (b) 46 CFR 54.15-25	
CS05.4	Examine means to protect non-pressure vessel tanks	46 CFR 38.10-15(e)	
CS05.5	Examine relief valves for primary and secondary barrier of non-pressure vessel type tanks	46 CFR 38.10-15(f)	

**Verifying Officer Guidance:** *Maintenance of the pressure vacuum valves is not directly addressed in the regulations. The vessel's Safety Management System should address the inspection intervals and routine maintenance which is developed from the manufacturer's recommendations.*

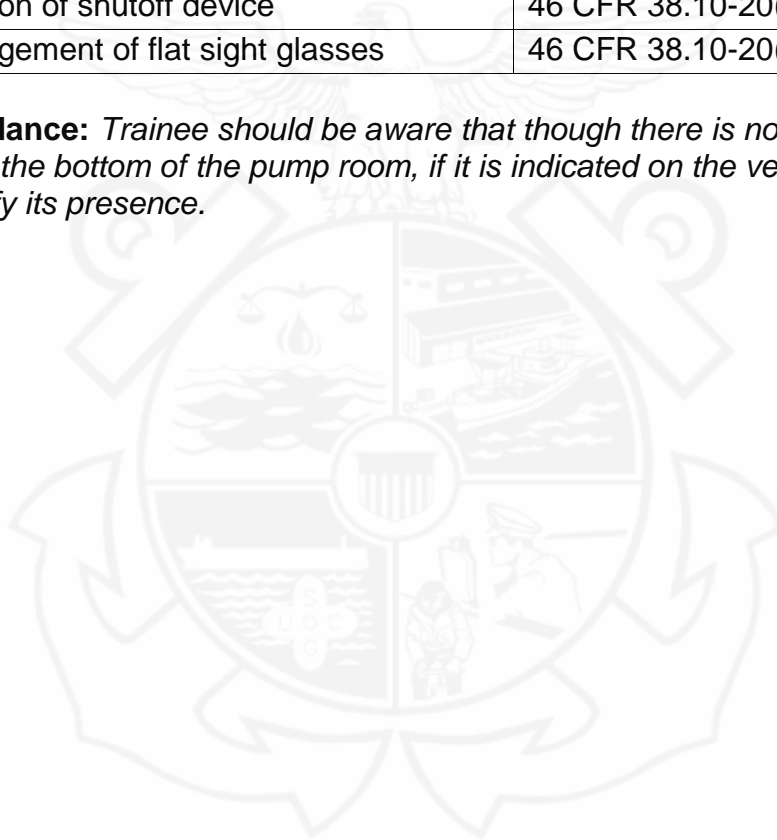
**Inspector's Name:** (Last, First, Initial)**EMPLID:****Verifying Officer's Signature:****Date:**



**Cargo Systems Inspection (CS)****Liquefied Gas Tank Barge****Task:** BIG-CS06 Inspect liquid gaging devices**Condition:** *During cargo systems inspection***Standard:** *In compliance with applicable policies, laws, regulations and standards***References:** 1. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases

Steps		References	Initials
CS06.1	Verify approval and type	46 CFR 38.10-20(a), (b) & (f)	
CS06.2	Verify maximum cargo to be carried	46 CFR 38.10-20(c)	
CS06.3	Verify location of shutoff device	46 CFR 38.10-20(e)	
CS06.4	Verify arrangement of flat sight glasses	46 CFR 38.10-20(h)	

**Verifying Officer Guidance:** *Trainee should be aware that though there is no requirement for an EEBD to be located at the bottom of the pump room, if it is indicated on the vessel's Fire Control Plan, the trainee should verify its presence.*

**Inspector's Name:** (Last, First, Initial)**EMPLID:****Verifying Officer's Signature:****Date:**

**Task:** BIG-CS07 Inspect leak detection system**Condition:** *During inspection***Standard:** *In compliance with applicable policies, laws, regulations and standards***References:** 1. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases

Steps		References	Initials
CS07.1	Verify type and condition of safe electrical devices	46 CFR 38.15-15(a) & (b)	
CS07.2	Verify segregation of electrical motors	46 CFR 38.15-15(b)	
CS07.3	Verify approval of submerged motor pump	46 CFR 38.15-15(d)(1), (2), (4) & (7)	
CS07.4	Verify operation of liquid sensing device shutdown and alarm location	46 CFR 38.15-15(d)(3)	
CS07.5	Verify auxiliary means to empty tank	46 CFR 38.15-15(d)(5)	
CS07.6	Verify means to disconnect power between power supply and switchboard	46 CFR 38.15-15(d)(6)	
CS07.7	Verify local and operations of shutdowns	46 CFR 38.15-20(a)	

**Verifying Officer Guidance:****Inspector's Name:** (Last, First, Initial)**EMPLID:****Verifying Officer's Signature:****Date:**

**Task:** BIG-CS08 Witness cargo tank testing

**Condition:** *During inspection*

**Standard:** *In compliance with applicable policies, laws, regulations and standards*

**References:** 1. Title 46, Code of Federal Regulations Part 38 Liquefied flammable gases

Steps		References	Initials
CS08.1	Verify tank type	46 CFR 38.05-3 & -4	
CS08.2	Verify nondestructive test requirements	46 CFR 38.25-1(b) 46 CFR 38.25-3	
CS08.3	Verify hydrostatic test is requirements	46 CFR 38.25-1(c)	
CS08.4	Verify non-pressure type tank test requirements	46 CFR 38.25-1(d)	

**Verifying Officer Guidance:**



<b>Inspector's Name:</b> (Last, First, Initial)	<b>EMPLID:</b>
<b>Verifying Officer's Signature:</b>	<b>Date:</b>

**Welding Repair Inspection (WR)****Liquefied Gas Tank Barge****Task:** BIG-WR01 Verify welding Procedure Qualification Records (PQR)**Condition:** *During examination of repair work on a pressure vessel that requires qualified weld procedures***Standard:** *In compliance with applicable policies, laws, regulations and standards*

- References:**
1. Title 46, Code of Federal Regulations Part 2 Vessel Inspections
  2. Title 46, Code of Federal Regulations Part 31 Tank Vessels - Inspection & Certification
  3. Title 46, Code of Federal Regulations Part 32 Tank Vessels - Special Equipment, Machinery & Hull Requirements
  4. Title 46, Code of Federal Regulations Part 57 Welding & Brazing
  5. ASME Boiler and Pressure Vessel Code, Section IX, 1989

Steps		References	Initials
WR01.1	Parent cite	46 CFR 31.10-1 46 CFR 31.30-1 46 CFR 32.60-1	
WR01.2	Confirm need for qualified welding procedure	46 CFR 2.75-70 46 CFR 57.02-2(a)(1)	
WR01.3	Verify variables on PQRs to the Welding Procedure Specification (WPS)	ASME IX/QW-200.1(b) ASME IX/QW-483	
WR01.4	Verify tests and results	ASME IX/QW-200.2(b)	

**Verifying Officer Guidance:** *Trainee shall demonstrate a working knowledge of the elements of a PQR and WPS. Also, demonstrate how to use the information contained in both.*

Inspector's Name: (Last, First, Initial)

EMPLID:

Verifying Officer's Signature:

Date:

**Welding Repair Inspection (WR)****Liquefied Gas Tank Barge****Task:** BIG-WR02 Verify welder is qualified to perform repair work**Condition:** *During examination of repair work on a pressure vessel***Standard:** *In compliance with applicable policies, laws, regulations and standards*

- References:**
1. Title 46, Code of Federal Regulations Part 2 Vessel Inspections
  2. Title 46, Code of Federal Regulations Part 31 Tank Vessels - Inspection & Certification
  3. Title 46, Code of Federal Regulations Part 32 Tank Vessels - Special Equipment, Machinery & Hull Requirements
  4. Title 46, Code of Federal Regulations Part 57 Welding & Brazing
  5. ASME Boiler and Pressure Vessel Code, Section IX, 1989

Steps		References	Initials
WR02.1	Parent cite	46 CFR 31.10-1 46 CFR 31.30-1 46 CFR 32.60-1	
WR02.2	Confirm need for qualified welding procedure	46 CFR 2.75-70 46 CFR 57.02-2(a)(1)	
WR02.3	Verify Welder Performance Qualification (WPQ) is valid	46 CFR 57.02-3 ASME IX/QW-322.1	
WR02.4	Verify variables on WPQ(s)	ASME IX/QW-301.2 ASME IX/QW-301.4 ASME IX/QW-484(a)	
WR02.5	Verify tests are satisfactory	ASME IX/QW-302.1 ASME IX/QW-484(a)	

**Verifying Officer Guidance:** *Trainee shall demonstrate a working knowledge of the elements of a WPQ and WPS. Also, demonstrate how to use the information contained in both.*

Inspector's Name: (Last, First, Initial)

EMPLID:

Verifying Officer's Signature:

Date:

**Performance Qualification Standard and Job Aid Change  
Recommendation Form**

From: \_\_\_\_\_ Date: \_\_\_\_\_

PQS/Job Aid Title:


Section(s) Affected:


Remark(s)/Comment(s):


Reference(s):


Signature: \_\_\_\_\_

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