



LGC NCOE Field Notice 01-2016  
16711/16-002  
07 Jan 2016

## MEMORANDUM

From: J. E. Smith, CDR

To: Distribution

Subj: LNG BUNKERING JOB AID FOR FACILITY TO VESSEL OPERATIONS

Ref: (a) CG-OES Policy Letter 01-15 – Guidance for Liquefied Natural Gas Fuel Transfer Operations and Training of Personnel on Vessels using Natural Gas as Fuel

(b) CG-OES Policy Letter 02-15: Guidance Related to Vessels and Waterfront Facilities Conducting Liquefied Natural Gas (LNG) Marine Fuel Transfer (Bunkering) Operations.

(c) LGC NCOE Field Notice 01-2015, CH-1 – CH-1 to LNG Bunkering Recommendations

1. In April 2015, the USCG Liquefied Gas Carrier (LGC) National Center of Expertise (NCOE) identified the need for and with USCG Headquarters program support established the LNG as a Fuel Workforce Development Committee (LNGFWDC) to identify USCG prevention workforce development needs for the emerging use of LNG as a maritime fuel and LNG bunkering. The LGC NCOE recruited over 40 field and staff subject matter experts (SME) comprised of experienced LNG facility inspectors, marine inspectors, and gas carrier examiners from around the nation as members of the LNGFWDC. The SMEs were divided into two sub-committees, one for LNG fueled vessels and one for LNG bunkering facilities. These groups have identified the highest priority workforce needs and will collectively develop draft deliverables to be used as recommendations for field units. The LGC NCOE is disseminating these recommendations as field notices for local units and industry to utilize on current and proposed projects and for USCG Headquarters program offices to consider as field tested templates.

2. Over the last several months the LNGFWDC LNG bunkering facilities sub-committee has identified the need for a LNG checklist for LNG bunkering operations from a facility to a vessel, as their highest priority. Throughout this timeframe several members of the team witnessed multiple LNG bunkering operations and reviewed case studies from industry and other government agencies around the globe. The bunkering facilities sub-committee used this information along with references (a), (b), and (c) to develop their first deliverable found in Encl (1): a LNG Facility to Vessel Bunkering Job Aid.

3. The LNG Bunkering Job Aid has been field tested at each of the approved LNG Bunkering facilities in the U.S. by local field units and the LNGFWDC. The LNG Bunkering Job Aid can be

used for initial and annual inspections of shore based LNG bunkering facilities and during transfer monitors of LNG bunkering operations from a facility to a vessel.

4. The LNGFWDC is currently developing a LNG Bunkering Job Aid for vessel to vessel LNG bunkering operations and a LNG as a fuel machinery checklist. Both deliverables should be released within the next few months.

5. Comments or questions regarding this job aid should be directed to the chair of the bunkering facilities sub-committee, LCDR Dallas Smith who can be reached by email at [dallas.d.smith@uscg.mil](mailto:dallas.d.smith@uscg.mil) or by phone at 409-723-6559.

Encl: (1) LNG Bunkering Job Aid

Dist: Sector Prevention Departments Chiefs  
Sector Inspection Divisions Chiefs  
Port State Control Branch Chiefs  
Sector Marine Inspection Training Officers  
District (p)  
Area (p)  
CG-ENG  
CG-FAC  
CG-OES  
CG-CVC  
MSC

## LNG BUNKERING JOB AID Facility to Vessel

Name of Waterfront Facility: \_\_\_\_\_  
 Name of Receiving Vessel: \_\_\_\_\_  
 IMO or Official Number: \_\_\_\_\_  
 Date/Time Transfer Started: \_\_\_\_\_  
 Product: LNG

Estimated Initial Transfer Rate: \_\_\_\_\_  
 Estimated Maximum Transfer Rate: \_\_\_\_\_  
 Estimated Maximum Transfer Pressure: \_\_\_\_\_  
 Date/Time Transfer Completed: \_\_\_\_\_

Y = Yes N = No N/A = Item does not apply to this transfer of LNG C = Corrected on the spot	Facility: (Tank Truck / Rail Car/ Container)				Vessel				Regulatory Cites
	Y	N	N/A	C	Y	N	N/A	C	
1. Verify valid vessel(s) Certificate of Inspection, Letters, Certificates of Compliance.									46 CFR 154.1801 (U.S. Flag Vessels) 46 CFR 154.1802 (Foreign Flag Vessels)
2. Verify compliance with vessel loading & stability manual.									46 CFR 154.1809
3. Verify Vessel's transfer procedures (Available to CG, Posted for Crew & Compliant)									33 CFR 155.720 (Procedure) 33 CFR 155.730 (Compliant) 33 CFR 155.740 (Available)
4. Verify Facility Emergency Manual ("Examined by COTP")									33 CFR 127.019 33 CFR 127.307 33 CFR 127.309
5. Verify Facility Operations Manual ("Examined by COTP")									33 CFR 127.019 33 CFR 127.305 33 CFR 127.309
6. Verify Advance Notice of Transfer, if required by COTP									33 CFR 156.118 (Facility & Vessel)
7. Verify preliminary transfer inspection is complete by PICs									33 CFR 127.315
8. Verify completion of Declaration of Inspection (DOI) to include Vapor Collection, if necessary									46 CFR 35.35-30 (Required & Content) 33 CFR 127.317 33 CFR 156.120 33 CFR 156.150 Vapor Recovery: 46 CFR 35.35-30(c)(1) (Aligned) 46 CFR 35.35-30(c)(2) (Connected) 46 CFR 35.35-30(c)(3) (Electrically Isolated) 46 CFR 35.35-30(c)(4) Transfer Rate 46 CFR 35.35-30(c)(5) (Pressure) 46 CFR 35.35-30(c)(6) (Alarms Tested) 46 CFR 35.35-30(c)(6) (Hose Condition) 46 CFR 35.35-30(c)(6) (O2 Level)
9. Verify PIC Designated & Qualified, MMC/Endorsements									33 CFR 127.301 33 CFR 127.503 33 CFR 155.700 33 CFR 155.710 33 CFR 155.715 (Content of PIC letter) 33 CFR 156.150 46 CFR 31.15-1 (Manned Tank Vessels) 46 CFR 35.35-1 (b), (Unmanned Tank Vessels) 46 CFR 154.1831 STCW Code, Chapter V/3, Reg. A-V/3, Sec. B-V/3
10. Verify no communication or language barrier									33 CFR 156.120(q),(v)
11. Verify both PICs agree to begin the LNG transfer operation. (Check DOI)									33 CFR 156.120(x) 46 CFR 35.35-20(f)
12. Verify PIC in immediate vicinity, Immediately available, Properly Supervising									33 CFR 127.319 (PIC) 33 CFR 156.115 (PIC Limitations) 33 CFR 156.120(s)(t) (On site, Guidance, Conduct) 33 CFR 156.160 (Supervision by PIC) 46 CFR 156.120 (aa), (Vapor Collection Operations) 46 CFR 35.35-35 (PIC Duties)
13. Verify adequate supervision and effective manning in attendance for all operations & emergencies.									33 CFR 156.120 (s) (t) (u)(i) 33 CFR 35.05-15 (Watchmen) 46 CFR 35.05-20/25 (Physical Condition)
14. Verify that each LNG loading flange is at least 300 meters (984 feet) from:									33 CFR 127.105
a. Each bridge crossing a navigable waterway.									33 CFR 127.105(b)(1)
b. Each entrance to any tunnel under a navigable waterway.									33 CFR 127.105(b)(2)
15. Verify that each LNG loading flange is at least 15 meters (49.2 feet) from a motor vehicle.									33 CFR 127.311 (a), (4)
a. Transfer piping									33 CFR 127.315 (a)
b. Cargo pressure, temperature & volume									33 CFR 127.315 (b)
c. PIC(s) Conference was conducted & included:									33 CFR 127.315 (c) 33 CFR 156.120(w)
(1) The identity of the product (MSDS)									33 CFR 127.315(c)(1)
(2) The sequence of transfer operations.									33 CFR 127.315(c)(2)



**LNG BUNKERING JOB AID**  
**Facility to Vessel**

27. Verify Gas Fueled Vessel's Storage Tank Instrumentation										IGF Code 15.3 (Local & Remote) IGF Code 15.4.1 (Liquid Level) IGF Code 15.4.2 (Overflow & Alarm) IGF Code 15.4.3 (Vapor Pressure) IGF Code 6.5.8 (Portable fuel tanks)
28. Verify Gas Fueled Vessel's Storage Tank Venting										IGF Code 6.7 (Pressure Relief System) IGF Code 8.5.2 (No gas discharge)
29. Verify Gas Fueled Vessel's Valves & Connections (Local, remote & emergency control shut-off)										IGF Code 8.4 (Manifold: dry-connect, break-away, self-sealing quick release) IGF Code 8.5.3 (Manual & Remote on bunker line) IGF Code 8.5.7 (Interlinked ESD-System)
30. Verify Gas Fueled Vessel's Storage Tank Piping/Lines										IGF Code 8.2.1.1 IGF Code 8.5.1 (Purging Bunker Lines) IGF Code 8.5.4 (Draining Bunker Lines) IGF Code 8.5.5 (Inerting/gas-freeing Bunker Lines) IGF Code 5.7 (Bunker Lines Location and Protection) IGF Code 9.5.1; 15.5.2/.3 (Bunkering Lines ventilation ducting)
31. Verify Gas Fueled Vessel's Bunker Station										IGF Code 8.3.1.1 (Location) IGC Code 15.5.1 (Location) IGF Code 8.3.1.3 (Spill Response) IGF Code 8.3.1.5 (Hull/Deck Cool Protection) IGF Code 8.3.2.2 (Hose burst pressure)
32. Verify Cargo Tank (Design & Installation)										46 CFR 38.05-3 (Pressure) 46 CFR 38.05-4 (Nonpressure) 46 CFR 38.05-4 (Marking) 46 CFR 38.05-10 (Installation)
33. Verify Cargo Tank Instrumentation (Liquid Level Gauging, Alarm, Pressure & Vacuum (PV) Protection, and Temperature)										46 CFR 154.536 (Tank Gauging & Measuring Connections) 46 CFR 154.1300 (General) 46 CFR 154.1325 (Alarm-All tanks) 46 CFR 154.1330 (Alarm-Independent Type C) 46 CFR 154.1335 (PV Gauge & Alarm) 46 CFR 154.1340 (Temperature)
34. Verify Cargo Tank (Venting, Pressure, Vacuum)										46 CFR 32.55-20 (Tankship) 46 CFR 32.55-25 (Tankbarge) 46 CFR 32.20-5 (PV relief valve) 46 CFR 154.703 (Pressure build up due to boil-off) 46 CFR 154.801 (Pressure Relief System) 46 CFR 154.802 (Alternative Pressure relief Settings) 46 CFR 154.804 (Vacuum Protection) 46 CFR 154.805 (Vent Mast)
35. Verify Cargo Valves (Local, remote & emergency control shut-off)										46 CFR 154.530 46 CFR 154.1866 (Remote/Quick closing) 46 CFR 38.10-1 (Valves & Fittings)
36. Verify Cargo Piping (bonding, hull protection, pressure relief)										46 CFR 154.512 46 CFR 154.517
37. Verify each part of the transfer system is proper length, supported and aligned to allow flow of LNG.										46 CFR 156.120 (b),(c),d)
38. Verify facility's cryogenic bunker hoses/loading arms are in good condition, tested, properly rigged, and appropriate for the service intended.										33 CFR 156.120(b) (c) (g) (i) (j) (k) 33 CFR 156.170
39. Verify vessel's cryogenic bunker hoses/loading arms are in good condition, tested, properly rigged, and appropriate for the service intended.										33 CFR 155.800 33 CFR 156.120(b) (c) (g) (i) (j) (k) 33 CFR 156.170 46 CFR 154.551 thru 154.562 46 CFR 154.1858
40. Verify each part of the transfer system not in use securely blanked.										33 CFR 155.805 33 CFR 156.120(e) (f)
41. Verify all connections in the transfer system are fixed, proper & leak free.										33 CFR 156.120 (g),(k),(p) 33 CFR 156.130 33 CFR 153.972 46 CFR 35.35.15
42. Verify remote shutdowns (Machinery for cargo loading, unloading or cooling)										46 CFR.15-20 (TB/ALL)
43. Verify drains and scuppers/ovbd discharge are closed										33 CFR 156.120 (h)(o)
44. Discharge equipment: accessible /deployed										33 CFR 156.120 (m)
45. Containment: required capacity, drained										33 CFR 156.120 (n)
										* Draft CTAC Minimum Design Std for Barges carrying LNG

<b>USCG Inspector</b>	<b>Supply Facility PIC</b>	<b>Receiving Vessel PIC</b>
_____	_____	_____
Printed Name	Printed Name	Printed Name
_____	_____	_____
Signature	Signature	Signature
_____	_____	_____
Date Signed	Date Signed	Date Signed