

KIRBY INLAND MARINE

CARGO TRANSFER PROCEDURES FOR THE BARGE

KIRBY 28019

PLEASE NOTE:

FOR PROPER VALVE ALIGNMENT AND SAFE CARGO TRANSFER GUIDANCE, PLEASE REFER TO KIRBY MARINE TRANSPORTATION'S CARGO HANDLING PROCEDURE MANUAL AND FOLLOW THE KIRBY TRANSFER PLAN.

IF YOU NEED A COPY OF THE PROCEDURE MANUAL, PLEASE CALL THE KIRBY DUTY LINE (713) 435-1618 OR (713) 435-1925 BEFORE CARGO OPERATION.

Non-Certificated Barge

See Notes on Piping Flow Diagram

This barge is set up with a

“DEEP WELL PRIME VALVE”

This valve is located to the stern of the barge by the pump.

This valve is only to be opened while priming the pump. Then it must be closed after priming is completed. If valve is left open, it will pump all cargo out of the one cargo tank. If loading with the master suction valve open, this could result in a cargo tank over fill.

(32c) Deep Well Prime Valve (Purpose to fill Deep Well Can from bottom) valve must remain closed while loading.

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SECTION 155.750 (a)(1):

CARGO INFORMATION

I. PROPER SHIPPING NAMES AND REGULATORY COMPLIANCE

1. The MSDS is the most accurate source of information available for the given cargo. Try to find a synonym for the product under this section in the MSDS. The Chemical Data Guide might be another good source for synonyms. If you find a match, the product has been identified by the USCG.
2. If you cannot get a match in any case, then contact your supervisor, and recommend that contact be made with the customer to find the appropriate USCG Shipping Name for barges. It is not your fault that this situation exists because the customer is responsible for ensuring that their product has the proper USCG shipping name; but as part of your pre transfer inspection, you are the last line of defense to ensure legality.

II. HAZARD INFORMATION SYSTEMS AND SOURCES

Due to the many cargoes that Kirby barges are certificated for, it makes no sense, as had been done in the past, to use generic information sheets from the voluminous CHRIS manuals, unless the barge was dedicated to a specific product. Further, the CHRIS information is too generic in nature. However, PIC's should ensure that the following information systems are available to ensure compliance with USCG regulations:

As a minimum, and according to the regulations governing the contents of this section of the transfer procedures, the MSDS, CIC, or appropriate cargo information source must contain the following information. The PIC must be familiar with the following particulars and ensure quick access to the information source when needed:

SECTION 155.750(a)(1) continued:

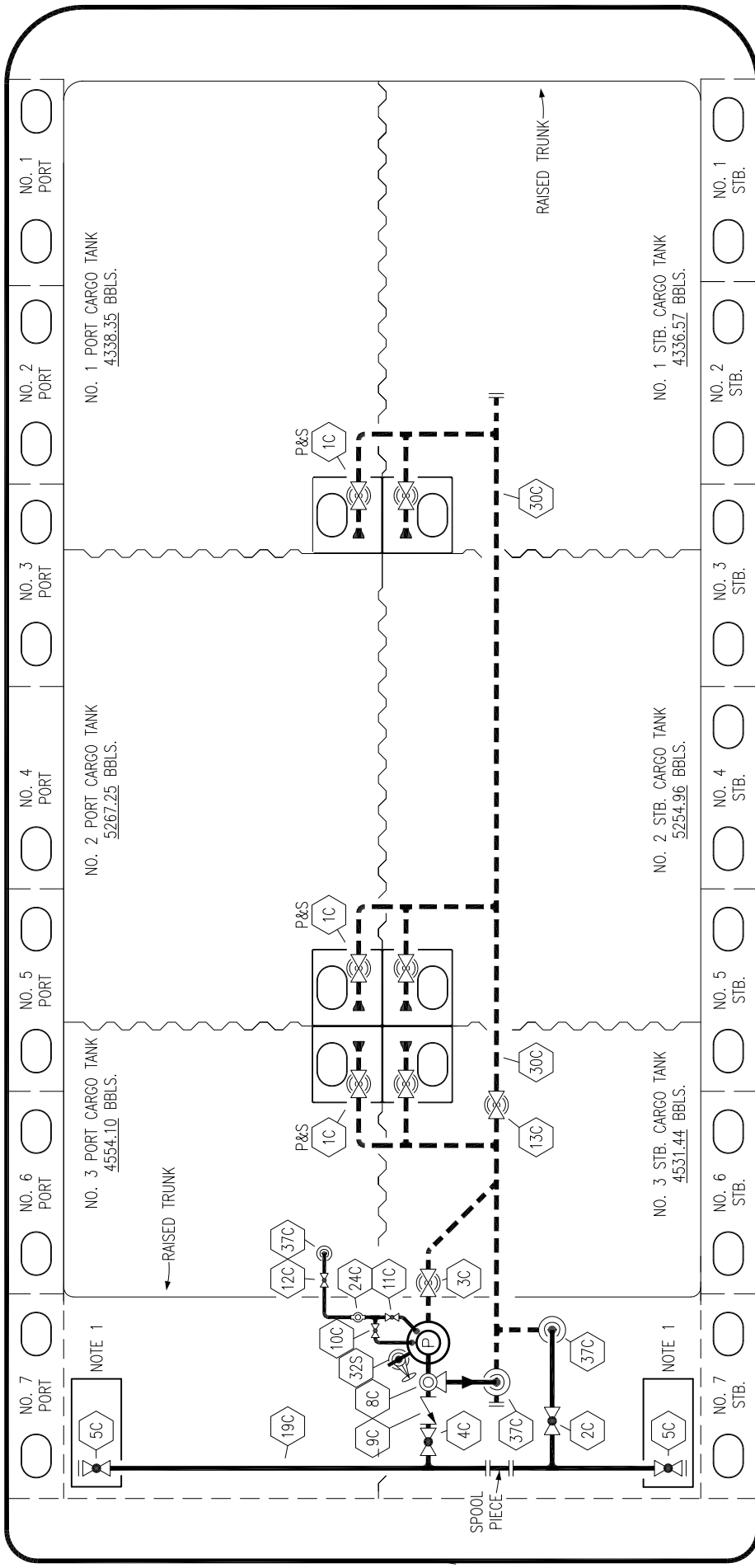
1. Physical and chemical properties addressing the appearance and odor. Be aware of the ODOR THRESHOLD LIMIT in particular, and how it compares with the TLV or PEL values. If it is higher than the PEL or TLV, you might be exposed to dangerous levels prior to detecting such through sense of smell.
2. A statement of the hazards involved and instructions for the safe handling of the cargo as applicable, the need for special cargo environmental control such as inert padding and inhibitors or stabilizers.
3. Emergency procedures stating the necessary precautions in the event of spills, leaks, or equipment/machinery breakdowns and/or uncontrolled release of cargo in to the atmosphere or the waterways.
4. Firefighting procedures to be used in the event of a fire occurring on or adjacent to the barge, and utilization of the limited equipment available for response.

SECTION 155.750(a)(2):
BARGE TRANSFER SYSTEM

I. PIPING DIAGRAM (S)

Please review the contents of the piping diagrams of this section.

PORT



STARBOARD

NO	DESCRIPTION
1C	CARGO TANK VALVE
2C	LOAD VALVE
3C	MASTER SUCTION VALVE
4C	DISCHARGE VALVE
5C	HEADER VALVE
8C	RELIEF VALVE
9C	CHECK VALVE
10C	1" BURP VALVE
11C	1" BLEED OFF VALVE
12C	1" BURP VALVE RETURN TO CARGO TANK
13C	CARGO PIPING BLOCK VALVE
19C	CARGO HEADER
24C	1" PIPE FLOW INDICATOR
30C	CARGO PIPELINE
32S	DEEP WELL PRIMER VALVE
37C	CARGO DROP

NOTE 1: CONTAINMENT P/S

WEST GULF MARINE - EX: N/A



KIRBY INLAND MARINE

CARGO

PIPING FLOW DIAGRAM

REV.	DATE	BY	CHK	APP	REVISION	DESCRIPTION
2						
1	06/21/17	WFB	DDA		REMOVED 6C SALVAGE VALVE	
0	11/23/09	RB	RB	OF	APPROVED	
2	07/21/22	MRV	DDA	MW	REVISED PER CLIENT COMMENTS	

SCALE: NONE PAGE: 1 OF 3

REV. **2**

DUTIES OF TANKERMAN (PERSON IN CHARGE)

2.4(a) FOR TRANSFER

According to the Coast Guard regulations found in 33 CFR Part 156.120, a transfer operation may not commence unless:

- A. The vessel moorings are checked to verify that they are strong enough to hold during all expected conditions of surge and current and allow for change in draft, drift, and tide;
- B. The transfer hoses and loading arms are long enough to allow the vessel to move within the limits of its moorings without placing a strain on a hose, loading arm, or piping system;
- C. Each hose is supported to prevent chaffing, kinking, or other damage to the hose or hose couplings;
- D. The PIC verifies that each appropriate transfer system is aligned to allow the proper flow of cargo;
- E. Each part of the transfer system not in use is securely blanked or shut off;
- F. Each end of any hose and loading arm that is not in use is securely blanked off with a blind flange;
- G. The transfer system is attached to a fixed connection on the vessel and the facility, except when a vessel is receiving fuel, then an automatic back pressure nozzle may be used;
- H. Each overboard discharge (if fitted) or sea suction valve that is connected to the vessel's transfer system or cargo tank system is sealed or locked in the closed position;
- I. Each transfer hose has no unrepaired loose covers, kinks, bulges, soft spots, or any other defect which would permit the discharge of oil or hazardous materials through the hose. The hose must not have gouges, cuts, or slashes that penetrate the first layer of the hose reinforcement;

- J. Each hose or loading arm meets
- K. Each connection meets the following requirements of Uses suitable material in joints and couplings to ensure a leak-free seal;
 - 1. Uses a bolt in every hole, no case less than four bolts, in each temporary bolted connection that uses a flange that meets ANSI standard flange requirements under 33 CFR Part 154.500(d)(2);
 - 2. Bolts and nuts must be tightened to uniformly distribute the load and ensure a leak-free seal;
- L. The discharge containment equipment required by as applicable, is readily accessible or deployed as applicable;
- M. The discharge containment required by, as applicable, is in place and periodically drained to provide the required capacity;
- N. All connections in the transfer system are leak free; except for those components in the transfer system, such as the packing glands of a pump, may leak at a rate that does not exceed the capacity of the discharge containment provided during the transfer operation;
- O. The communications required by 33 CFR Parts 154.560 and 155.785 are operable for the transfer operation;
- P. The emergency means of shutdown required by 33 CFR Parts 154.550 and 155.780, if applicable, is in position and operable;
- Q. There is one PIC on both the transferring and receiving vessel or facility unless otherwise authorized ;

- R. Each PIC on duty at the site of the transfer operation, has checked to ensure that a copy of this manual is on the barge; As appropriate, the PIC conducts the operations according to the manual and is immediately available to transfer personnel during the transfer operation;
- S. The PIC of the dock facility or other vessel boat speak the same language (English);
- T. The transfer is conducted in accordance with all local, state, and federal regulations;
- U. A conference must be held between the person-in-charge of the dock facility vessel and PIC. They must understand all of the following details of the transfer operation:
 - 1. The identity of the product to be transferred;
 - 2. The sequence of the transfer operations;
 - 3. The transfer rate;
 - 4. The name or title, and the location of each person involved in the transfer operations and the procedures for relieving watch or changing the shift;
 - 5. Details of the transferring and receiving system;
 - 6. Critical stages of the transfer operations;
 - 7. Federal, state, and local rules that apply to the transfer;
 - 8. Emergency procedures;
 - 9. Discharging containment procedures;
 - 10. Discharge notification procedures (vessel to vessel, or vessel to dock);
 - 11. Watch of shift change arrangements;
 - 12. Transfer shutdown procedures;
 - 13. The Declaration of Inspection has been signed, and is in the possession of the PIC;

V. The PIC of transfer operations on the vessel or facility loading the cargo and the PIC of transfer operations of the receiving vessel or facility agree to begin transfer operations;

W. The transfer operation between tank barges and the dock facility is adequately lighted between sunset and sunrise;

SECTION 155.750(a)(5):

TENDING VESSEL MOORINGS DURING TRANSFER OPERATIONS

Proper mooring of the barge is essential for both safety and pollution prevention. You may not transfer cargo to or from a barge unless its moorings are strong enough to hold in all expected conditions of surge, current, and weather. The mooring lines must be long enough to allow for changes in draft, trim, surge, and tide during transfer operations.

All conditions at the dock must be considered to determine the adequate size, proper lead and the number of lines necessary. Surge of the barge, both at parallel to and at right angles to the dock, will be influenced by the proximity of traffic in the channel, the dock design, the state of the tide and the barge's draft. Be sure that all lines have the proper lead and are secure.

Be particularly mindful of docks with high and low mooring dolphins, etc. It may be necessary to shift from lower mooring supports to higher or visa versa, as the barge goes down or comes up from the water.

When mooring the barge, as a MINIMUM standard, the PIC should ensure that the number of mooring lines used is in accordance with the governing Standard Operating Procedures for the service of this barge. The lines are used in combination to fulfill the following functions:

- (1) Towing lines
- (2) Backing lines
- (3) Spring lines

SECTION 155.750(a)(6):

PROCEDURES FOR OPERATING THE EMERGENCY SHUTDOWN AND PROVISION OF COMMUNICATIONS

I. EMERGENCY SHUTDOWN OPERATIONS

In case of hose rupture, tank overflow, or other emergency, normal means of stopping the flow of product may require inadequate time to properly arrest it. To ensure a more timely, if not immediate, shutdown, both the vessel and facility are required to have emergency shutdown equipment.

For all loading operations the facility must supply the barge with an electrical, air operated, or mechanical control which is connected to the shoreside transfer system and enables the PIC of the barge to stop the flow of the product to the barge from his usual operating station. A communication device connected to the shoreside control operation and used for no other purpose would also be acceptable.

For unloading situations, in addition to the facility provided system, the barge is required to have a means of shutting down the barge transfer system by shutting off the driver for the cargo pump; in this case a diesel powered engine. This is accomplished with the use of a simple shutdown cable which is connected to close the air intake “flapper” of the engine. This activation point of the shutdown cable needs to be at least 100’ away from the engine. This should be tested by grabbing the handle of the cable at the marked shutdown station and pulling upwards. Then inspect the intake area of the engine to ensure proper closure of the flapper valve.

Be suspicious of barges which have the cable strung through a lot of corners and edges back in the machinery flat area. Do not check the operation at closer locations than the remote station.

Due to engine wear from the past, it is not recommended to start up the engine and check for proper shutdown operation by seeing if the engine dies. However, if you are suspicious of complete flapper valve operation, then test the shutdown with the engine idling at very low rpm’s.

SECTION 155.750(a)(6) continued:

II. COMMUNICATIONS

In vessel to vessel transfers, and vessel to facility transfers, there must be a means of continuous two-way voice communications between the Persons in Charge of each entity.

The means of communication must be usable and effective in all phases of the transfer operation and in all conditions of weather.

If portable radio devices are used to comply with this requirement, they must be intrinsically safe as defined in 46 CFR 110.15-100(f), and meet Class 1 Division 1 Group D requirements as defined in 46 CFR 111.80.

Be Careful during unloading operations when you are within the vicinity of the operating pump engines. More frequent radio or other voice communication checks may be necessary to ensure timely notification.

SECTION 155.750(a)(7):

PROCEDURES FOR TOPPING OFF TANKS

Prior agreement in the reduced transfer rates to be used during topping off and trimming the barge should be discussed during the pre transfer conference. The PIC must give the facility PIC proper notice before topping off the final tank so that the flow rate can be reduced in preparation for the final shutdown. Further, reduced loading rates should be agreed upon when the initial topping off of the first set off tanks begins, if desired. Reduced rates or shutdown procedures should be discussed and utilized whenever something does not look right or if problems should arise during the topping off stage.

Generally, in a simultaneous (non split) load the barge SHOULD BE TOPPED OFF FROM BOW TO STERN making certain that it is kept as level as possible to prevent system load; or from entering the common vent system or leaking through butterworths. ALTHOUGH BOW TO STERN TOPPING OFF IS STRONGLY ENCOURAGED YOU CAN DEVIATE FROM THIS SEQUENCE IF THE BARGE APPEARS TO TRIM IN A MANNER SUPPORTING SUCH. This could happen due to different barge designs and cargo specific gravities.

Top off only one tank at a time. It is best to either close or restrict flow by pinching down on the valves to those tanks adjacent to the one being topped off. For example, assuming a bow to stern sequence, while topping of the #1's, the #2's might be pinches down, with the #3's either pinched down more than the #2's, or perhaps closed.

As the product level approaches the required level in the tank, pinch down on the tank valve, and open more of the valves in the adjacent tank or tanks. This helps in reducing hammer pressure on the piping. For example, as the required level is approached in the #1's, pinch down on the #1's and open more of the #2's.

Once the product reaches the desired level in the tank, close the valve tightly, then re-open it to slightly wash away scale in the valve gate. Close it again tightly.

Use the same sequence of pinching down, opening, and closing, the valves to the tanks of concern and those adjacent tanks as you top off in the proper direction. IT IS BEST TO BEGIN TOPPING OFF WHEN THERE IS ABOUT TWO TO THREE FEET OF CARGO TANK SPACE IN EACH REMAINING SET OF TANKS. This outage might be higher if the barge for one reason or another is not trimming too evenly up to this point.

While topping off the last tank, ensure that enough room is left for the hose draining or line blowback.

SECTION 155.750(a)(7) continued:

Once the facility PIC is informed of the shutdown, ensure that the facility shore side valves are closed first before the barge header valves. This prevents over-pressurization of the transfer hose or loading arm.

The following additional points are important to remember:

- A. Closing off one tank valve increases the rate of flow to the other tanks of the system
- B. The rate of flow into any tank which is nearly full can quickly be reduced by opening the valve to another tank.
- C. The greater the pressure against a valve (such as head pressure), the longer it will take to open it.
- D. The liquid level in topped off tanks should be checked frequently to ensure that the liquid level is not rising. This may occur if the barge stripping system is not properly secured or if the cargo valves are leaking.

NOTE: On 10,000 bbl barges, no more than 18 inches of trim allowed.

SECTION 155.750(a)(8):

PROCEDURES FOR ENSURING ALL VALVES ARE CLOSED

Upon completion of barge transfer operations and the clearing of the dock cargo hose or pipeline, the PIC should perform the following procedures on the barge:

1. Close the cargo tank valves, the loading valve (to the load drop), or pump suction and discharge valve, and the header valves.
2. Ensure all valves of the cargo system are closed on the barge.
3. Close the vent stack if the product of load or discharge (since there are still vapors present in the tanks) is a Grade A, B or C flammable liquid, or if it is Subchapter "O" cargo which requires "PV" venting in lieu of "OPEN" venting. If you are not sure of the venting requirement for a particular Subchapter "O" cargo, then check the table 46 CFR 151.05 or bring this matter to the attention of your supervisor. If you are unsure of the flammability grade of a Subchapter "D" cargo, then check the MSDS. Also, the terminal might require the vent stack to be closed after the transfer even if not required by USCG regulations, so be aware of this.
4. If the barge does not have a common header and vent stack, then ensure that the cargo tank domes and/or ullage hatches are closed, since these were probably used to vent the cargo tanks while loading. This is required for all Grade A, B and C cargoes under Subchapter "D" and those Subchapter "O" cargoes requiring "PV" venting in 46

CFR Table 151.05. Grades D and E Subchapter “D” cargoes, plus those Subchapter “O” cargoes with an “Open” venting requirement in Table 151.05 can have hatches open (with flame screen) but it is usually best to transit with the ullages closed and allow venting through the PV valve installed on the tanks.