11706-31 4-1948

You have 600 tons of below deck tonnage. There is no liquid mud aboard. If you have 150 tons of cargo above deck with a VCG above the deck of 2.8 feet, what is the maximum allowed VCG of the remainder of the deck cargo that is permitted? (See illustration D036DG, stability letter for M.V. Hudson)

A. 1.96 feet
Incorrect.

B. 2.25 feet
Incorrect.

C. 3.20 feet
Correct.

D. 3.55 feet
Incorrect.

Solution:

1. Important information found in the stem of the question:

a. No liquid mud onboard
b. 600 tons of below deck tonnage.

Taking these two variables you would consult the Loading Diagram, found on the third page in Diagram D036DG, to find the MAXIMUM amount of cargo allowed above deck.

On the horizontal grid find 600 tons of below deck tonnage and run vertically until you intersect with the line labeled "WITHOUT LIQUID MUD". From this point run horizontally to find the "ABOVE DECK CARGO", which is **300 Long Tons.**

2. Looking at the first page of Diagram D036DG in paragraph #3 you will find that "the height above the main deck of the center of gravity of the deck cargo shall not exceed the value shown on the LOA DING DIAGRAM **(3.0 feet)."**

Continued on Next Page

Vertical Center of Gravity of the Deck Cargo (feet) = Vertical Moment (ft-tons) / Total Weight (tons)

Weight	VCG	Moment (VCG x Weight)
150 Tons(existing cargo)	2.8 feet	420 ft-tons
150 Tons (300max-150 existing)	X feet	150X
300 Tons	3.0 (max VCG)	(420 + 150X)

To find VCG of Remaining Deck Cargo :

VCG = Vert. Moment / Total Weight

3.0 feet = (420 + 150X) ft-tons / 300 Tons

150X ft-tons = 480 Tons

X = 3.2 feet

U.S. Department of Transportation
United States Coast Guard

Commandant
United States Coast Guard

Washington, D.C. 20593-0001
Staff Symbol:
Phone:

16710
8 Apr 87

Master, M/V HUDSON, O.N. 666666

Subj: M/V HUDSON
Stability

Dear Sir:

A stability test, supervised by the U.S. Coast Guard, was conducted on the M/V HUDSON at San Diego, California on 08 April 1987. On the basis of this test, stability calculations have been performed. Results indicate that the stability of the M/V HUDSON, as presently outfitted and equipped, is satisfactory for operation in Ocean Service as indicated on the Certificate of Inspection, provided the following restrictions are strictly observed:

1. a. The vessel shall only be loaded according to the instructions on the attached LOADING DIAGRAM bearing U.S. Coast Guard approval stamp dated 8 April 1986.

b. Drilling fluids may be carried. The maximum specific gravity of the fluids shall not exceed 2.60.

c. The vessel may engage in towing operations when loaded in accordance with the attached LOADING DIAGRAM.

2. The height above the main deck of the center of gravity of the deck cargo shall not exceed the value shown on the LOADING DIAGRAM (3.0 feet). Such cargo must be positively secured against shifting prior to leaving protected waters.

3. Permanent ballast, in the form of 64.4 long tons of high density fluids (sg. = 2.87), is to be maintained in the after peak tank. No permanent ballast shall be added, removed, altered and/or relocated without the authorization and supervision of the cognizant Officer in Charge, Marine Inspection.

4. The maximum summer load line draft is 13 feet 8 3/8 inches. Trim shall be minimized and shall always result in a freeboard of at least 22 inches at the stern.

5. No more than one centerline or P/S pair of the following tanks may be partially filled at any one time: fuel oil, lube oil, potable water, ballast/cargo water, fuel oil day tanks, drilling fluid. Cross-connections between all port and starboard tank pairs shall be kept closed at all times when underway.

D036DG

6. Main deck hatches and weather doors to the forecastle and machinery spaces shall be kept closed and fully secured at all times when underway, except when actually used for transit under safe conditions.

7. Main deck freeing ports shall be maintained operable and completely unobstructed at all times.

8. Bilges shall be kept pumped to minimum content at all times.

9. Suitable tables or curves for determining the capacities of full or partially full tanks shall be maintained aboard the vessel.

10. The Master should make every effort to determine the cause of any list of the vessel before taking corrective action.

It shall be the Master's responsibility to maintain the vessel in a satisfactory stability condition at all times.

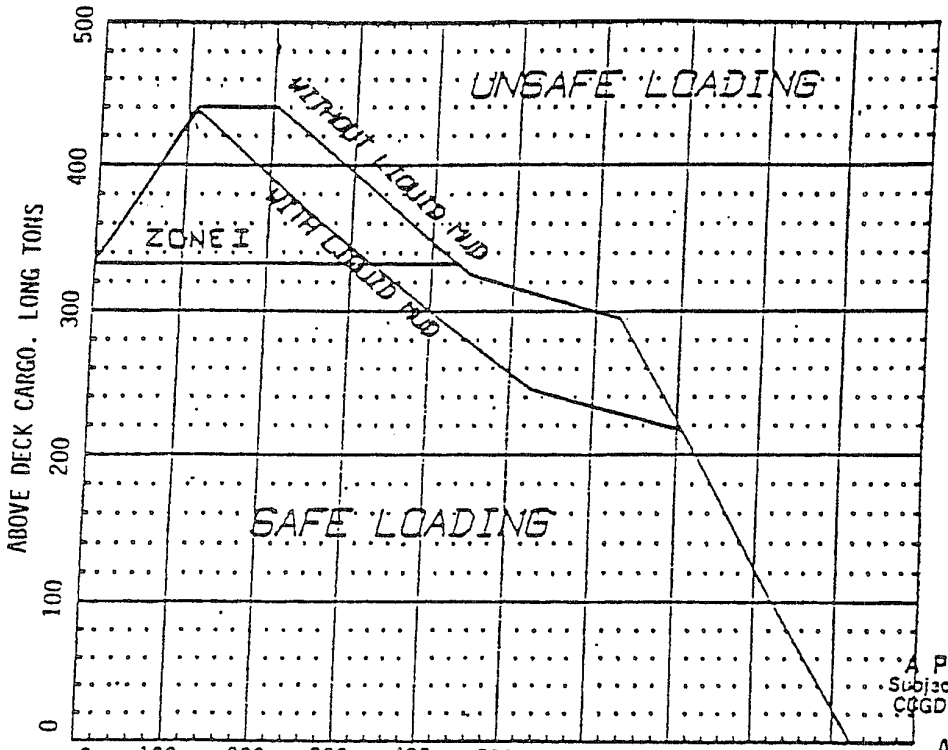
This stability letter shall be posted under suitable transparent material in the pilothouse of the vessel so that all pages and the diagram are visible. It supersedes any stability information previously furnished the vessel.

Sincerely,

A. B. SEA
Lieutenant Commander
U.S. Coast Guard

Attachment: LOADING DIAGRAM for the subject vessel bearing U.S. Coast Guard approval stamp dated 8 April 1987

SEE NEXT PAGE FOR ATTACHMENT



APPROVED
Subject to comments in
CGGD8 (MMT) letter of
APR 8 1986

Chief Merchant Marine Technical Branch
By Direction of Commander
Eighth Coast Guard District

USCG STABILITY
LOADING INSTRUCTIONS

1. DRAW A VERTICAL LINE UP FROM 'BELOW DK' LOAD. DRAW HORIZONTAL LINE ACROSS FROM 'ABOVE DK' LOAD. IF THEY MEET BELOW THE CURVE THEN THE LOADING IS OK. IF THEY MEET ABOVE THE CURVE THEN YOU MUST CHANGE THE LOADING.

2. MAX. DECK CARGO VCG 3.00 FT ABOVE DECK.

3. WHEN OPERATING IN ZONE 1 (I.E. MORE THAN 334 LONG TONS OF DECK CARGO) THE FOREPEAK BALLAST TANK SHALL BE PRESSED FULL.