



**Stability Letter**

16 January 2015

Person in Charge, "NANA PROVIDER" U.S. O.N. 1197833  
Gunderson Marine, Hull 74  
420' (LOA) x 100' x 24'  
Unmanned Deck Cargo/Rail Car Barge [I]

You are responsible for maintaining this barge in a satisfactory stability condition at all times and for following the instructions and precautions listed below. All log entries required by 46 CFR 42.07-20 shall be made prior to getting underway for each voyage.

A deadweight survey, witnessed by American Bureau of Shipping (ABS), was conducted on the "NANA PROVIDER" O.N. 1197833 at Alaska Marine Lines Terminal 115 in Seattle, WA on 19 December 2014. On the basis of that test, stability calculations have been performed. Results indicate that the stability of the "NANA PROVIDER" O.N. 1197833, as presently outfitted and equipped is satisfactory for unmanned operation on Exposed Waters, provided that the following restrictions are observed.

**OPERATING RESTRICTIONS**

1. **ROUTE:** Operation on Exposed Waters is permitted for unmanned operations only.
2. **FREEBOARD AND DRAFT:** A maximum keel draft of 18 feet 1-13/16 inches is permitted. This corresponds to a minimum freeboard of 5 feet 11-5/8 inches from the main deck measured amidships. Trim shall be minimized and shall not exceed 4 feet by the bow or the stern, as measured on the draft marks.
3. **WEIGHT CHANGES:** This stability letter has been issued based upon the following lightship characteristics:

Weight:	3,880.71	Long Tons
LCG:	214.51	Feet AFT of FR 0
VCG:	17.26	Feet Above Baseline

Any alteration, other than the installation of the CL Container racks, resulting in a change in these parameters will invalidate this letter. No fixed ballast or other such weights may be added, removed, altered, and or relocated without the authorization and supervision of the cognizant OCMI. The barge is not fitted with permanent ballast.

4. **DECK CARGO:** The deck cargo and containers should be loaded according to the Loading Tables in this Stability Calculations Booklet. Observe the following precautions and restrictions:
  - Load Case 1: When any amount of containers is carried in the CL Container Racks, Frames 16-47, the max cargo height and CVCG of the additional general deck cargo for a given draft shall not exceed the values given in Table 1.
  - Load Case 2: When no CL Container Racks are installed on the barge, Frames 16-47, the maximum cargo height and CVCG for a given draft shall not exceed the values given in Table 2.
  - For deck cargo heights that fall between two values in the tables, the next higher value is to be used.



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- Containers shall be loaded with heavier containers on the bottom so that the VCG of the stack does not exceed one-half the height.
- Container weight in the racks shall never exceed 4324 short tons. The weight of each stack may not exceed 142,000 lbs. in positions 1-25 (Fr. 16-41) and 129,000 lbs. in positions 26-31 (Fr. 41-47).
- Cargo heights for the general deck cargo are to be measured above the steel Main Deck.
- Deck cargo length shall not exceed 420.0 feet.

The loading diagrams are stamped "Approved" and are enclosed with this stability letter.

5. **TANKS:** No liquid cargo other than ballast water in the six designated ballast tanks or containment liquid in the aft center rake may be carried below deck, without investigating the effect on stability.
6. **HULL OPENINGS:** Any openings that could allow water to enter into the hull shall be kept closed while at sea.
7. **WATERTIGHT BULKHEADS:** No watertight bulkheads shall be removed, or altered without the authorization and supervision of the cognizant OCMI.
8. **BILGES:** The vessel's voids shall be kept pumped to minimum content at all times consistent with pollution prevention requirements.
9. **LIST:** The Master is responsible to make every effort to determine the cause of any list of the barge before taking corrective action.

This stability letter, along with the Load Line Certificate, shall be maintained in a suitable location onboard the barge for the guidance of the Person in Charge. It supersedes all stability information previously issued to the vessel

Very truly yours,

Daniel Cronin  
Vice President of Engineering  
ABS Americas

By:

William (Bill) Leyrer  
Managing Principal Engineer  
Ship Engineering Department

Attachment: "Loading Tables and Figures – Case 1: CL Racks on." and "Loading Tables and Figures – Case 2: CL Racks off." bearing ABS approval stamp dated 16 January 2015.



### III. LOADING TABLES AND FIGURES – CASE 1: CL RACKS ON

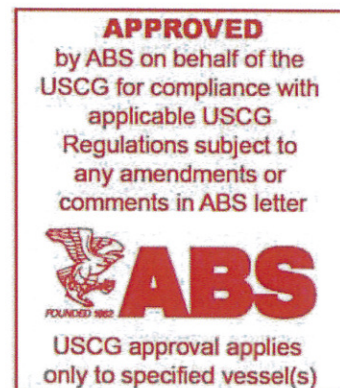
#### A. Table 1

**LOAD CASE 1: CL CONTAINER RACKS ONBD FR 16-47 WITH CONTAINERS IN RACKS UP TO MAX STACK WT**  
**TABLE 1 - MAX DK. CARGO HEIGHT AND VCG**

Mean Draft Distance above Baseline	Max Dk Cargo Ht Feet above Deck	Max Dk Cargo VCG Feet above Deck	DWT (Dk Cargo + Containers + Ballast)	
			Long Ton	Short Ton
18 Ft. 1.07 In.	25 Ft. 11 In.	12 Ft. 11 In.	13,141	14,718
17 Ft. 0 In.	50 Ft. 0 In.	25 Ft. 0 In.	11,910	13,339
16 Ft. 0 In.	74 Ft. 3 In.	37 Ft. 1 In.	10,793	12,089
15 Ft. 0 In.	92 Ft. 6 In.	46 Ft. 3 In.	9,686	10,848
14 Ft. 0 In.	105 Ft. 2 In.	52 Ft. 7 In.	8,594	9,625
13 Ft. 0 In.	117 Ft. 6 In.	58 Ft. 9 In.	7,518	8,420
12 Ft. 0 In.	128 Ft. 7 In.	64 Ft. 3 In.	6,453	7,227
11 Ft. 0 In.	142 Ft. 10 In.	71 Ft. 5 In.	5,407	6,056
10 Ft. 0 In.	162 Ft. 1 In.	81 Ft. 0 In.	4,374	4,899
9 Ft. 0 In.	181 Ft. 2 In.	90 Ft. 7 In.	3,356	3,759
8 Ft. 0 In.	206 Ft. 2 In.	103 Ft. 1 In.	2,356	2,638
7 Ft. 0 In.	237 Ft. 5 In.	118 Ft. 8 In.	1,368	1,532
6 Ft. 0 In.	271 Ft. 6 In.	135 Ft. 9 In.	398	446
5 Ft. 7 In.	288 Ft. 3 In.	144 Ft. 1 In.	0	0

**Notes:**

1. Cargo Height and VCG shown are for deck cargo portion of load exclusive of any containers in racks.
2. At each draft, limiting Cargo Ht and VCG are the lesser of Cases 1A (no wt. in rack) & 1B (max wt. in rack).
3. Containers in Racks may be stacked up to 3 High (10' high containers).
4. Container stack weights shall not exceed 142,000 lb on each side P/S (Fr. 16-41) and 129,000 lb on each side P/S (Fr. 41-47).
5. Deck Cargo measurements are from steel main deck.
6. All cargo shall be adequately secured against shifting.



## IV. LOADING TABLES AND FIGURES – CASE 2: CL RACKS OFF

### A. Table 2

**LOAD CASE 2: CL CONTAINER RACKS OFF FR 16-47, DECK CARGO ONLY**  
**TABLE 1 - MAX DK. CARGO HEIGHT AND VCG**

Mean Draft Distance above Baseline	Max Dk Cargo Ht Feet above Deck	Max Dk Cargo VCG Feet above Deck	DK Cargo + Ball Dwt	
			Long Ton	Short Ton
18 Ft. 1.07 In.	38 Ft. 9 In.	19 Ft. 4 In.	13,530	15,154
17 Ft. 0 In.	56 Ft. 0 In.	28 Ft. 0 In.	12,298	13,774
16 Ft. 0 In.	72 Ft. 8 In.	36 Ft. 4 In.	11,182	12,524
15 Ft. 0 In.	90 Ft. 1 In.	45 Ft. 0 In.	10,075	11,284
14 Ft. 0 In.	103 Ft. 2 In.	51 Ft. 7 In.	8,982	10,060
13 Ft. 0 In.	115 Ft. 0 In.	57 Ft. 6 In.	7,906	8,855
12 Ft. 0 In.	125 Ft. 6 In.	62 Ft. 9 In.	6,841	7,662
11 Ft. 0 In.	139 Ft. 0 In.	69 Ft. 6 In.	5,796	6,491
10 Ft. 0 In.	157 Ft. 4 In.	78 Ft. 8 In.	4,763	5,334
9 Ft. 0 In.	175 Ft. 4 In.	87 Ft. 8 In.	3,745	4,194
8 Ft. 0 In.	198 Ft. 11 In.	99 Ft. 5 In.	2,744	3,074
7 Ft. 0 In.	228 Ft. 6 In.	114 Ft. 3 In.	1,756	1,967
6 Ft. 0 In.	260 Ft. 6 In.	130 Ft. 3 In.	787	881
5 Ft. 2 In.	293 Ft. 2 In.	146 Ft. 7 In.	0	0

**Notes:**

1. Cargo Height and VCG shown are for cargo when CL Racks have been removed from barge.
2. Measurements are from steel main deck
3. All cargo shall be adequately secured against shifting

