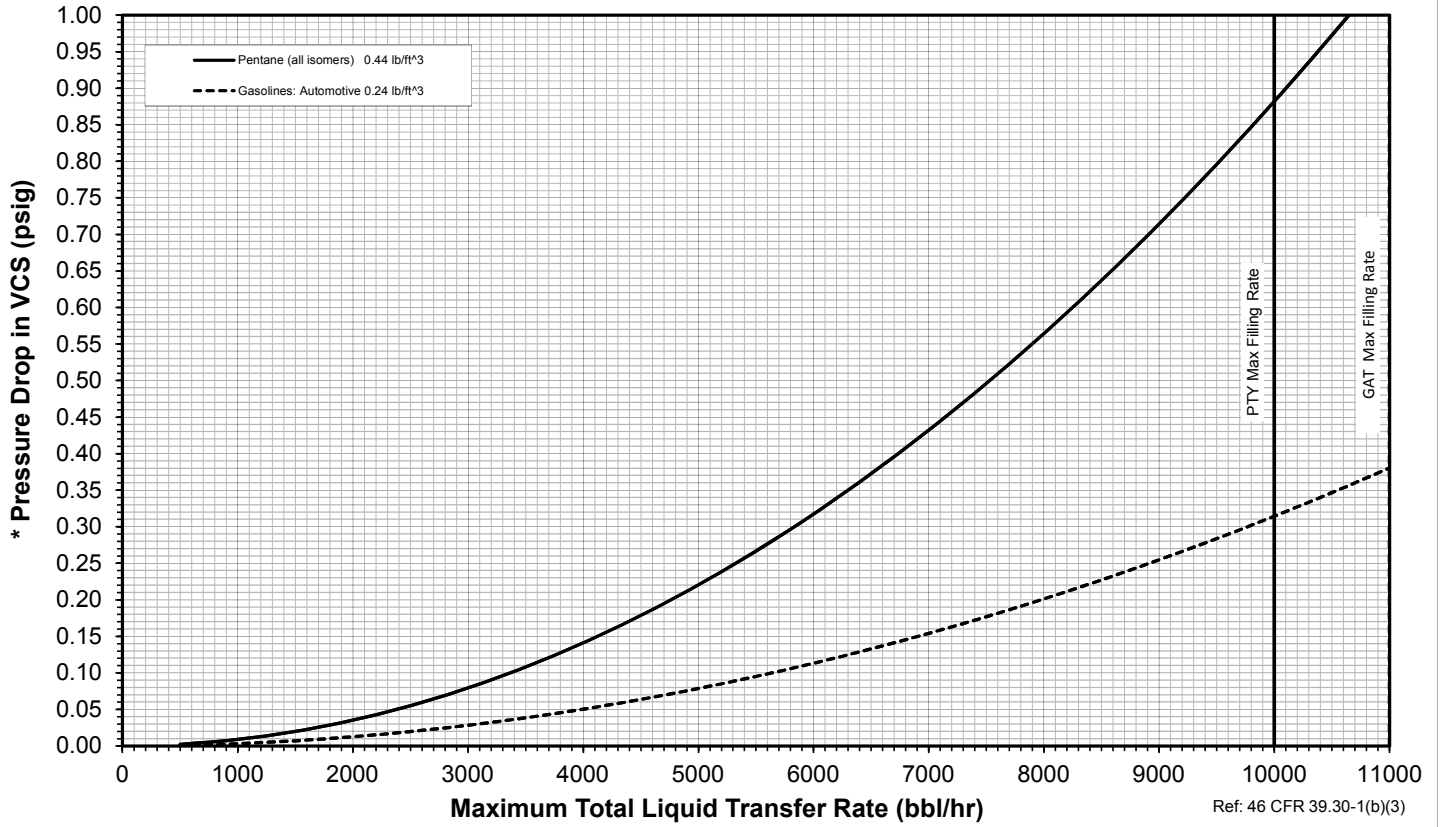


Graphs as required by 46 CFR 39.30-1(b)(3)

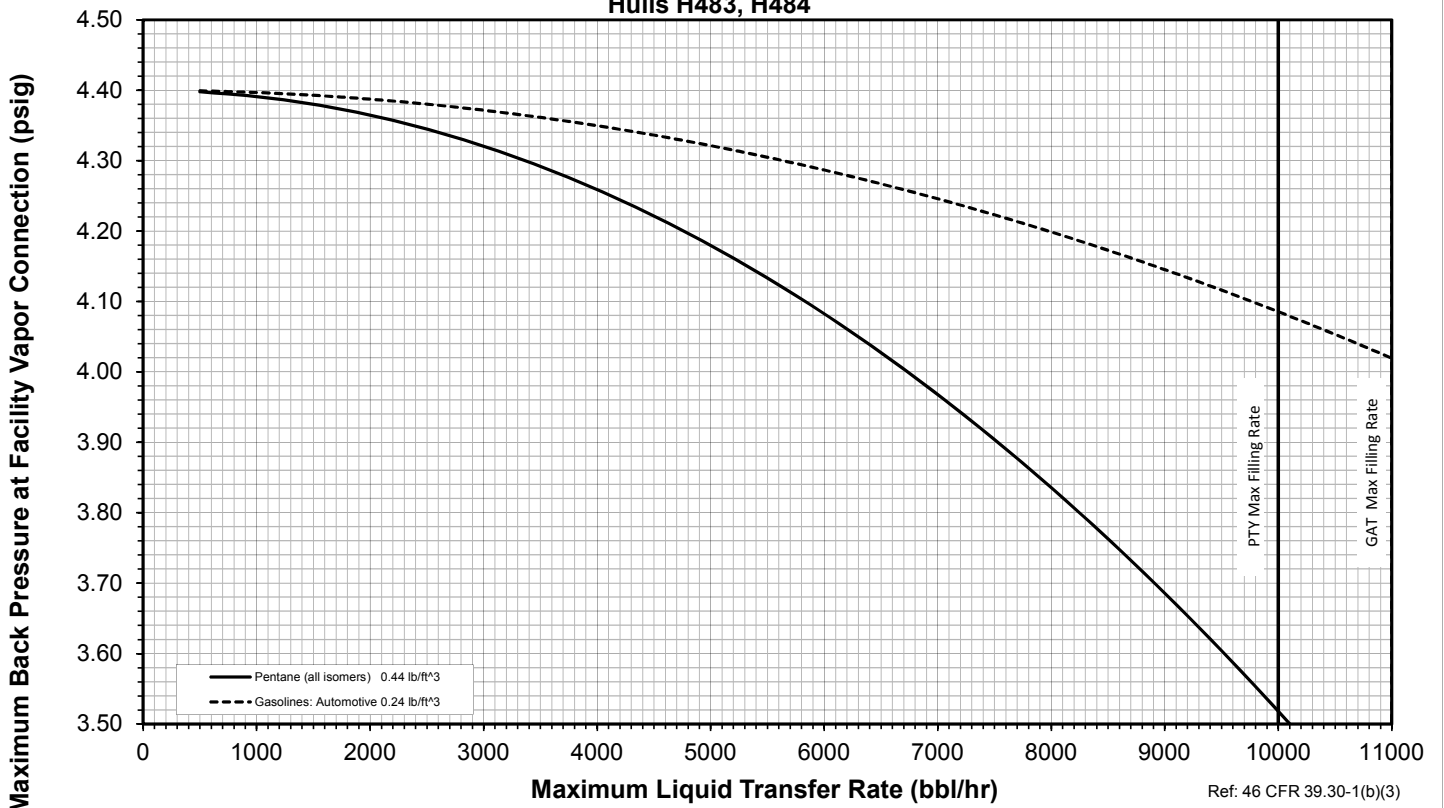
**Curve of Loading Rate vs. Pressure Drop**

Conrad Orange Shipyard  
Hulls H483, H484



**Curve of Allowable Back Pressure at Facility Connection**

Conrad Orange  
Shipyard  
Hulls H483, H484



U.S. Department of  
Homeland Security

United States  
Coast Guard



Commanding Officer  
United States Coast Guard  
Marine Safety Center

US Coast Guard Stop 7410  
4200 Wilson Blvd., Ste 400  
Arlington, VA 20598-7410  
Staff Symbol: MSC-3  
Phone: (703) 872-6731  
Email: [msc@uscg.mil](mailto:msc@uscg.mil)

16710/P019275  
Serial: C1-1500200  
January 16, 2015

Guarino & Cox, LLC  
Attn: Mr. Ryan Ingerick  
19399 Helenbirg Road; Suite 203  
Covington, LA 70433  
Email: [r.ingerick@guarino-cox.com](mailto:r.ingerick@guarino-cox.com)

Subj: NEW CONSTRUCTION, CG1323256, Conrad Orange Shipyard Hull No. H-483  
NEW CONSTRUCTION, CG1323257, Conrad Orange Shipyard Hull No. H-484  
200' x 35' x 12'-6" Unmanned Double Hull Type I/II/III Tank Barges (D/O)  
Grade A (max. 25 psia Reid) and Lower Flammable or Combustible Liquids Identified in  
46 CFR Table 30.25-1 or 46 CFR Part 153 Table 2 and Specified Hazardous Cargoes  
Design Density 8.7 lbs/gal; Maximum Density (slack load) 12.91 lbs/gal  
Rivers; Lakes, Bays, and Sounds; Limited Coastwise on unmanned fair weather voyages  
only, not more than 12 miles offshore between St. Marks and Carrabelle, Florida  
Vapor Collection System and List of Authorized Cargoes

Ref: (a) Conrad Industries Co., Dwg. No. H-483-P5, Rev. No. 3, "Vapor Recovery Piping  
Arrgt.," Sheet 1 of 2, dated November 24, 2014  
(b) Conrad Industries Co., Dwg. No. H-483-P5, Rev. No. 2, "Vapor Recovery Piping  
Arrgt.," Sheet 2 of 2, dated December 10, 2014  
(c) Guarino & Cox, LLC, "Vapor Control System Calculations," Rev. No. 0, dated  
November 3, 2014

Dear Mr. Ingerick:

In response to your emails dated November 12, 2014 and December 17, 2014 (MSC Document Nos. 1418822 and 1419768) we have reviewed the vapor collection system (VCS) piping plan and the vapor control pressure drop calculations for compliance with 46 CFR Part 39, excluding Subpart 39.4000. The VCS piping plan, references (a) and (b), are "**Approved.**" The installation, workmanship and testing shall be to the satisfaction of the cognizant Officer in Charge, Marine Inspection (OCMI). The pressure drop calculations, reference (c), are "**Examined.**" Calculations and plans such as these are not normally marked approved, but are used to verify that the system meets the applicable regulations. The following comments apply; those that require action must be addressed to the satisfaction of the OCMI:

1. Based on your calculations, this VCS is capable of recovering vapors of the cargoes listed in enclosure (1) at a maximum vapor-air mixture density of **0.436 lbm/ft<sup>3</sup>**, at a maximum liquid load rate of **5,000 bbl/hr for Pentane (CHRIS Code = PTY) and Pentene (CHRIS Code = PTX) and 5,500 bbl/hr for all other cargoes**, and a maximum liquid discharge rate of **4,500 bbl/hr**.

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Vapor Collection System and List of Authorized Cargoes

2. In accordance with reference (b), the set-point of the overflow shutdown system shall be no higher than **6 inches (0.5 feet)** below the tank top of each cargo tank at centerline.

3. The oil transfer procedures shall include a table or graph showing the liquid transfer rate versus the pressure drop, as required by 46 CFR 39.3001(c)(4). This information must be taken from the calculations, tables, and graphs contained within reference (c).

4. The tanks share a common vent header, which would allow mixing of various vapors and liquid cargoes. Note this configuration restricts the types of cargoes that can be carried simultaneously.

5. Enclosure (1) contains VCS Category 2, 4, and/or 7 cargoes. Polymerization and residue build-up of these cargoes can adversely affect the operation of the vapor collection system. The barge's owner must develop a method for internal visual inspection to verify that fouling of VCS components is not occurring. In addition, vessel owner must test the Pressure-vacuum valves and spill valves prior to each transfer, and ensure vapor piping systems and valves are inspected annually in accordance with 46 CFR 39.2014.

6. Vapor collection hoses carried aboard the vessel, if any, must be designed and marked in accordance with the requirements of 46 CFR 39.2001(h). Equipment used for handling vapor collection hoses must be designed to preclude kinking or collapse of the hose as required in 46 CFR 39.2001(i); hose saddles may be acceptable for complying with this requirement.

7. Several of the cargoes listed in the Vapor Control System Calculations, reference (c), have not been evaluated by the Coast Guard for vapor collection. Because the properties of these cargoes have not been evaluated, the cargoes are not authorized for vapor collection and will not appear on the vessels list of authorized cargoes. If the vessel is required to collect the vapors of a cargo which has not been evaluated for vapor collection you must submit to the Commandant (CG-ENG-5) a written request to have the cargo evaluated as prescribed by 46 CFR 39.1000.

8. In conjunction with this review, we have generated the subject vessel's cargo authority based on the Tank Group Characteristics Loading Form included with your submission. The 46 CFR 151 Cargo List is attached as enclosure (2).

9. At the time of this review, the vessels' names and official numbers were not available. Once **you provide** vessel names and official numbers to this office, the Cargo Authority Attachment (CAA) for each vessel will be made available in the Coast Guard's Marine Information for Safety and Law Enforcement (MISLE) database. The CAA will contain the cargoes found in enclosures (1) and (2). Please note that only the cognizant OCMI can issue a vessel's CAA, which is valid only when referenced by and attached to a valid Certificate of Inspection (COI). The OCMI will verify the carriage authority and vapor control tank group

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Vapor Collection System and List of Authorized Cargoes

characteristics we used to create enclosures (1) and (2) are consistent with the vessel's actual construction. Enclosure (3) contains the VCS tank group characteristics and our recommended COI endorsement.

As a condition of your participation in MSC's electronic commerce program, you must provide a copy of the approved drawings to the OCMI, along with a copy of the corresponding MSC approval letter.

Our Project Number for this vessel is **P019275**. Please ensure that future correspondence includes the Project Number, and either the Coast Guard (CG) number that appears in the subject line or the Official Number of each barge once assigned. To avoid confusion, the vessel owners are encouraged to provide the CG number to the National Vessel Documentation Center when applying for documentation.

If you have any questions concerning our review, please contact Lieutenant Ryan Mowbray at the number listed above.

Sincerely,

R. C. BECKMANN  
Lieutenant, U. S. Coast Guard  
Chief, Vessel and Cargo Branch  
By direction

Encl: (1) Vapor Collection System List of Cargoes; Conrad Orange Shipyard Hulls H-483 & H-484; dated January 16, 2015  
(2) 46 CFR Part 151 Cargo List, Conrad Orange Shipyard Hulls H-483 & H-484; dated January 16, 2015  
(3) VCS PRIS; Conrad Orange Shipyard Hulls H-483 & H-484; dated January 16, 2015

Copy: Commanding Officer, Coast Guard Marine Safety Unit Port Arthur



## Marine Safety Center Vapor Control System (VCS) Plan Review Information Sheet (PRIS)



<b>Vessel Name</b>	New Construction	<b>Shipyard</b>	Conrad Orange
<b>Official Number</b>	CG1323256, CG1323257	<b>Hull Number</b>	H-483, H-484

1. This sheet consolidates critical VCS parameters for MSC Staff Engineers and CG Field Inspectors dealing with Vapor Control Systems. CG Inspectors should verify the vessel's VCS design is consistent with the information listed in boxes 2, 6, 7 & 8 prior to updating the vapor control endorsement on the vessel's Certificate of Inspection. For cases where the information in the VCS PRIS does not reflect the vessel's design the CG Inspector should contact the MSC's Cargo Authority branch.

<b>2. Tank Maximum Design Working Pressure</b>	<b>6.00</b>	psig	<b>Raised Trunk</b> <input checked="" type="checkbox"/>	<b>Flush Deck</b>
<b>3. Authorized Maximum Cargo Transfer Rate(s)</b>	<b>5,000</b>	bbl/hr loading (Pentane & Pentene)		
	<b>5,500</b>	bbl/hr loading (All other Apv'd Cargoes)		
	<b>4,500</b>	bbl/hr discharging		
<b>4. Authorized Maximum Vapor-Air Mixture Density</b>	<b>0.436</b>	lbm/ft <sup>3</sup>		
<b>5. Authorized VCS Categories</b>	<b>1 through 5</b>			

**6. Cargoes with the highest vapor density and/or pressure drop:**

a. Cargo Name ISO-PENTANE

b. Cargo Name ISO-PENTANE

<b>7. Pressure Vacuum Valve:</b>			<b>8. VCS Pipe Sizes:</b>	
<b>Manufacturer</b>	ERL	<b>Settings in psig:</b>	Approx. Inside Diameter	
<b>Size</b>	Superac 6" PV II	Pressure-side	5.5	Longitudinal Header (inches)
<b>CG Approval</b>	162.017/167/4	Vacuum-side	0.5	Transverse Header (Inches)
<b>Required Venting Capacity of Pressure-Side of P/V valve</b>			<b>14732</b>	<b>bbl/hr (air)</b>
<b>Required Venting Capacity of Vacuum-Side of P/V valve</b>			<b>5500</b>	<b>bbl/hr (air)</b>

**9. Tank Overfill Protection System** (check appropriate box or boxes)

a. High Level/Tank Overfill Alarm	<input checked="" type="checkbox"/>	Type	ERL Level Alert II	Meets ASTM F1271 <b>Setting in psig</b> <div style="border: 1px solid black; padding: 2px; width: 50px; text-align: center;">N/A</div>
b. Overfill Control Shutdown	<input checked="" type="checkbox"/>	Type	ERL Level Alert II	
c. Spill Valve	<input type="checkbox"/>	Type	N/A	
d. Rupture Disk	<input type="checkbox"/>	Type	N/A	

**10. Closed Gauging**    Verify the vessel has closed gauging that satisfies 46 CFR 39.20-3 and 151.15-10(c).

**11. Instructions/Guidelines for the OCMI:**

11a. The following is the Marine Safety Center's recommended COI endorsement:

In accordance with 46 CFR Part 39, excluding part 39.4000, this vessel's vapor collection system has been inspected to the plans approved by MSC letter C1-1500200 dated January 16, 2015, and has been found acceptable for the collection of bulk liquid cargo vapors annotated with "Yes" in the CAA's VCS column of the vessel's Cargo Authority Attachment. The VCS system has been approved with a pressure side 5.5 psig P/V valve with Coast Guard Approval 162.017/167/4. The cargo tank top is suitable for a maximum allowable working pressure (MAWP) of 6 psi. When the vessel is carrying cargoes containing greater than 0.5% benzene, the person in charge is responsible for ensuring the provisions of 46 US Code of Federal Regulations Part 197, Subpart C are applied.

11b. The MSC approval letter/s must be available at the OCMI's request.

11c. Verify isolation valve at the vapor connection flange is manually operable and designed in a way it is "clearly" open or closed.

11d. Previous applicable approval letters:

VCS Approval Letter	MSC Letter C1-1500200 dated January 16, 2015	MSC Plan Reviewer	LT R. W. Mowbray
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