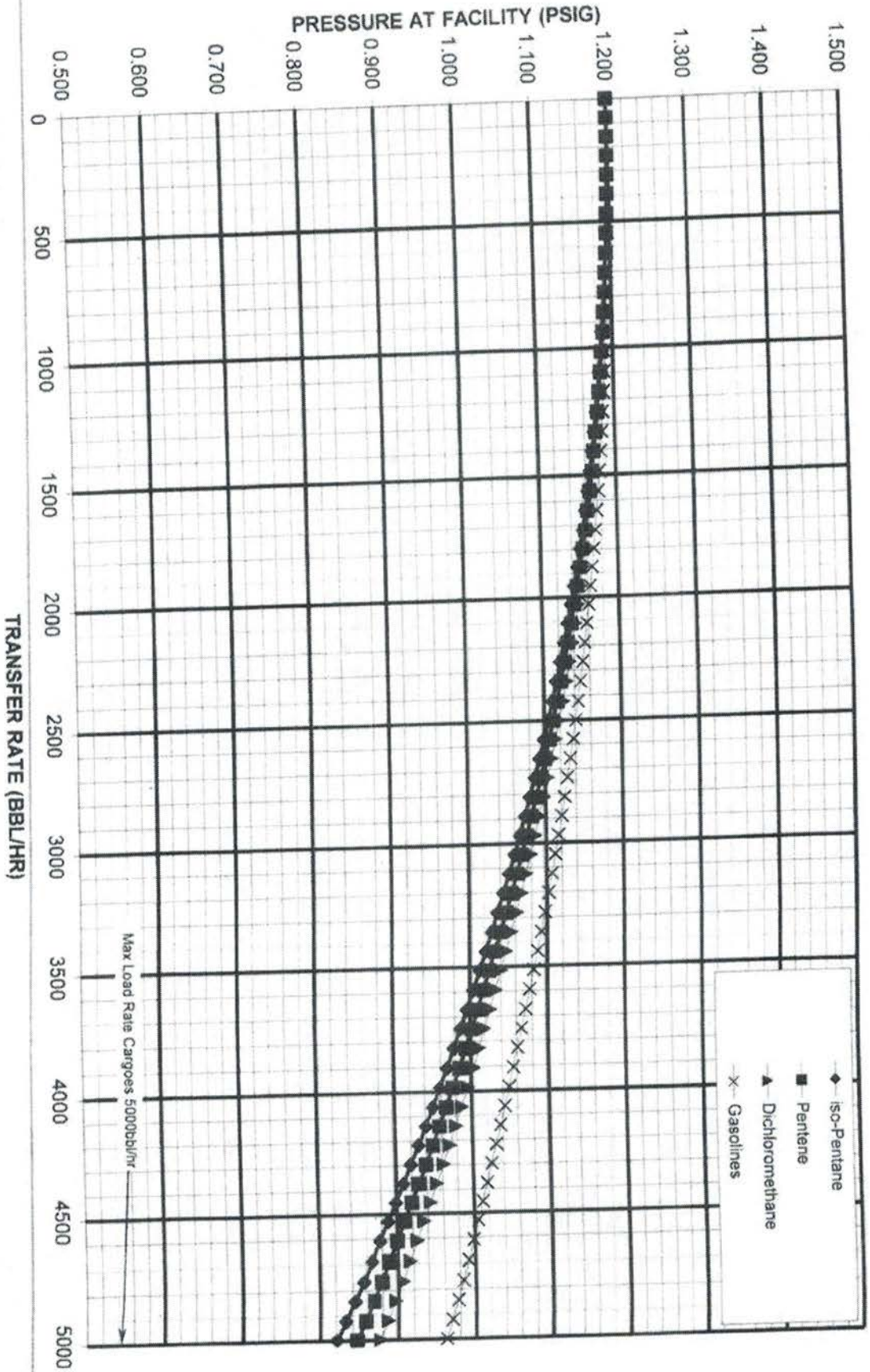
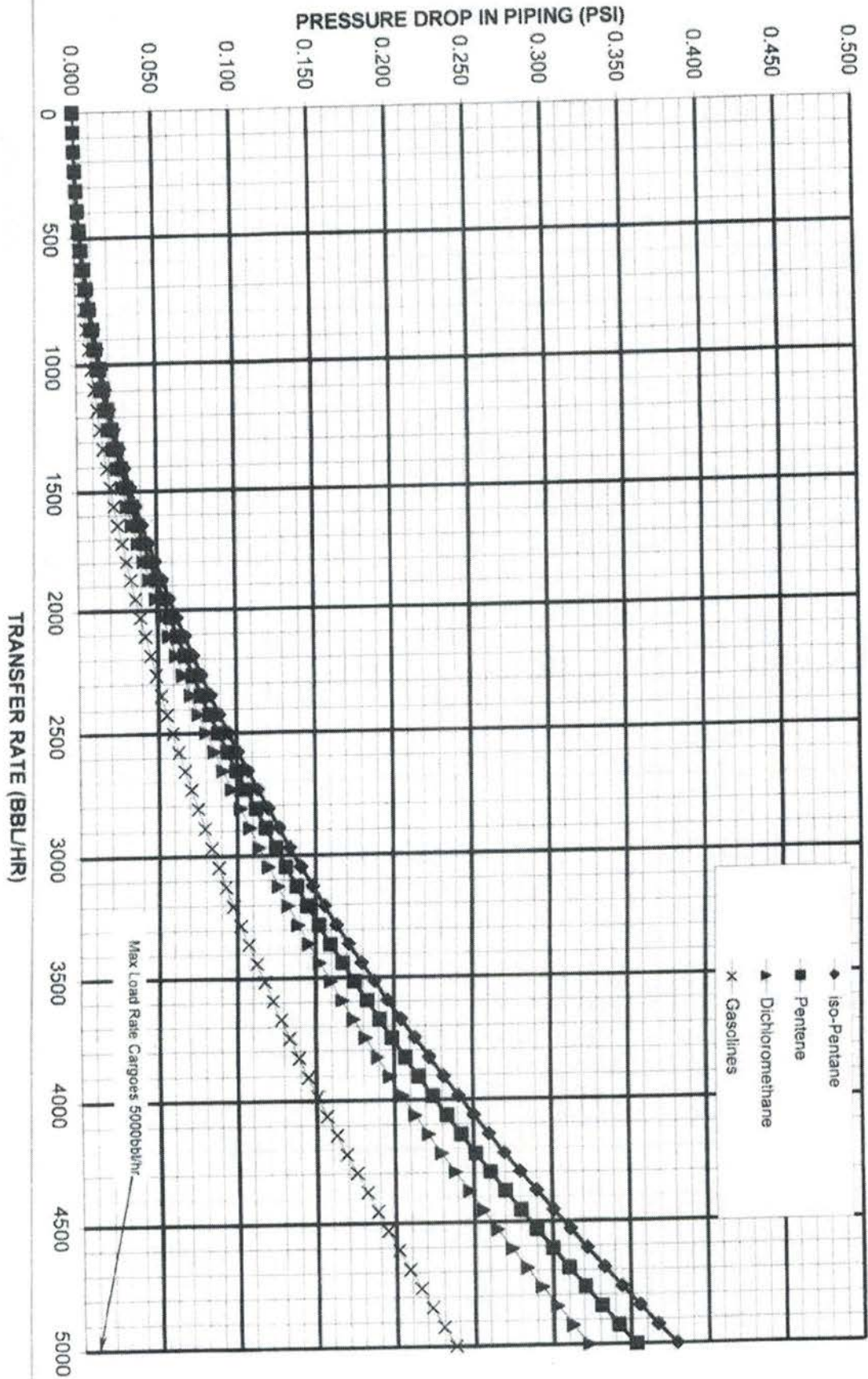


**LIQUID TRANSFER RATE vs FACILITY PRESSURE FOR SINGLE LOADING  
 BASED ON PRESSURE DROP FROM CARGO TANK #1 TO FACILITY CONNECTION**



**LIQUID TRANSFER RATE vs PIPING PRESSURE DROP**  
**CARGO TANK #1 TO FACILITY CONNECTION**  
**SINGLE LOADING**





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



<b>Vessel Name</b>	E2MS 302 and 303	<b>Shipyard</b>	Trinity Marine
<b>Official Number</b>	1248273, 1248274	<b>Hull Number</b>	4968 and 4969

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>	<input style="width: 80%;" type="text" value="3.00"/> psig	<b>Raised Trunk</b>	<input checked="" type="checkbox"/>
		<b>Flush Deck</b>	<input type="checkbox"/>

<b>3. Authorized Maximum Cargo Transfer Rate(s)</b>	<input style="width: 80%;" type="text" value="6,500"/> bbl/hr loading (max 2 tanks simultaneously)
	<input style="width: 80%;" type="text" value="6,500"/> bbl/hr discharging

<b>4. Authorized Maximum Vapor-Air Mixture Density</b>	<input style="width: 80%;" type="text" value="0.347"/> lbm/ft <sup>3</sup>
--	--

<b>5. Authorized VCS Categories</b>	<input style="width: 80%;" type="text" value="1 through 7"/>
-------------------------------------	--

<b>6. Cargoes with the highest vapor density and/or pressure drop:</b>	
a. Cargo Name	<u>ISO-PENTANE</u>
b. Cargo Name	<u>ISO-PENTANE</u>

<b>7. Pressure Vacuum Valve:</b>		<b>8. VCS Pipe Sizes:</b>	
<b>Manufacturer</b>	<input style="width: 80%;" type="text" value="ERL"/>	<b>Approx. Inside Diameter</b>	
<b>Size</b>	<input style="width: 80%;" type="text" value="SUPERAC II PV-6"/>	<b>Longitudinal Header (inches)</b>	<input style="width: 80%;" type="text" value="8"/>
<b>CG Approval</b>	<input style="width: 80%;" type="text" value="162.017/167/4"/>	<b>Transverse Header (Inches)</b>	<input style="width: 80%;" type="text" value="8"/>
<b>Settings in psig:</b>			
Pressure-side	<input style="width: 80%;" type="text" value="1.5"/>		
Vacuum-side	<input style="width: 80%;" type="text" value="0.5"/>		
<b>Required Venting Capacity of Pressure-Side of P/V valve</b>	<input style="width: 80%;" type="text" value="17341"/>	<b>bbl/hr (air)</b>	
<b>Required Venting Capacity of Vacuum-Side of P/V valve</b>	<input style="width: 80%;" type="text" value="6566.253215"/>	<b>bbl/hr (air)</b>	

<b>9. Tank Overfill Protection System (check appropriate box or boxes)</b>			
a. High Level/Tank Overfill Alarm	<input checked="" type="checkbox"/>	Type	<input style="width: 80%;" type="text" value="Guard Level 07324TWIN-2A"/>
b. Overfill Control Shutdown	<input checked="" type="checkbox"/>	Type	<input style="width: 80%;" type="text" value="Guard Level 07324TWIN-2A w/shore connector"/>
c. Spill Valve	<input type="checkbox"/>	Type	<input style="width: 80%;" type="text" value="N/A"/>
d. Rupture Disk	<input type="checkbox"/>	Type	<input style="width: 80%;" type="text" value="N/A"/>
			<b>Meets ASTM F1271</b>
			<input style="width: 80%;" type="text" value="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 39.40, this vessel's vapor collection system has been inspected to the plans approved by Marine Safety Center letter Serial No. C1-1302286 dated August 20, 2013, and has been found acceptable for the collection of bulk liquid cargo vapors annotated with "Yes" in the the vessel's Cargo Authority Attachment's VCS column.  
 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:

<b>VCS Approval Letter</b>	<input style="width: 80%;" type="text" value="MSC letter C1-1302286 dated August 20, 2013"/>	<b>MSC Plan Reviewer</b>	<input style="width: 80%;" type="text" value="LT R. W. Mowbray"/>
----------------------------	--	--------------------------	---